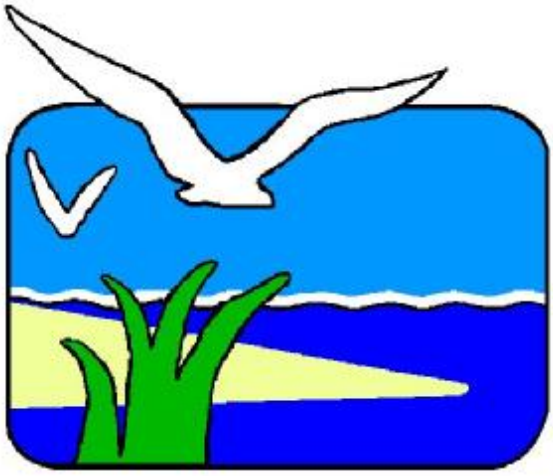

Environmental Assessment

BNP Petroleum Corporation
Lemon/Lemon Seed Units
No. 1-1000S and No. 1-1008S
Padre Island National Seashore • Texas

July 2002

Environmental Assessment

BNP Petroleum Corporation
Lemon/Lemon Seed Unit Wells
Padre Island National Seashore, Texas

Summary

On November 26, 2001, BNP Petroleum Corporation (BNP) submitted a Plan of Operations to the National Park Service (NPS) to drill and produce the Lemon/Lemon Seed Unit wells from a surface location approximately 12.5 miles south, from the end of Park Road 22. The wells would be directionally drilled to bottom-hole locations east of the surface location in the Gulf of Mexico.

This Environmental Assessment (EA) evaluates two alternatives for BNP to drill and produce the Lemon/Lemon Seed Unit wells. Alternative A evaluates baseline conditions under No Action. In this case, No Action means that BNP would not drill the wells. Under No Action, there would be no additional impacts on the affected environment, and no impact on the domestic energy supply. However there would a moderate to major adverse impact on BNP due to the investment in preparing a plan of operation and not being able to develop its private mineral interest. Alternative B evaluates the Plan of Operations, as submitted by BNP, to drill and produce the wells. Due to mitigation measures, most notably directional drilling, there would be no impacts to seagrass beds or algal flats, trees, cultural resources; and impacts on air quality, geology and soils, water resources and floodplains, vegetation, natural soundscapes, wildlife, state and federally protected species, and visitor use and experience would be localized and long-term, with adverse impacts ranging from negligible to moderate. A section of the foredunes would be impacted with the construction of the new access road, with measures taken to stabilize this cut immediately after construction. A small portion of emergent wetlands would be impacted during the construction of the pipeline. We recognize that these are sensitive resource areas and would be managed as per mitigation measures established in the Padre Island Oil and Gas Management Plan (March 2001) and developed through this environmental assessment. Alternative B is the proposed action. Alternative A is the environmentally preferred alternative.

Public Comment

If you wish to comment on the Plan of Operations, Environmental Assessment, draft Floodplains Statement of Findings, or draft Wetlands Statement of Findings please mail comments to the name and address below. These documents will be on public review for 30 days. The Notice of Availability will be published in the *Corpus Christi Caller Times*. Please note that names and addresses of people who comment become part of the public record. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations, businesses, and individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Superintendent
Padre Island National Seashore
P.O. Box 181300
Corpus Christi, Texas 78480

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1.0. PURPOSE AND NEED

This Environmental Assessment (EA) evaluates two alternatives for the National Park Service (NPS) to permit BNP Petroleum Corporation (BNP) to drill and produce the Lemon/Lemon Seed Unit Wells (Nos. 1-1000S and 1-1008S) within Padre Island National Seashore. The purpose of this analysis is to provide a decision-making framework for the NPS to approve the use of parklands for BNP to explore and develop its mineral rights, while protecting and preventing impairment to park resources and values, and allowing for a safe visitor experience; and to determine whether an Environmental Impact Statement (EIS) should be prepared.

When Congress authorized the establishment of Padre Island National Seashore on September 28, 1962 (16 U.S.C. §459d, *et seq.*), surface ownership within the area was acquired by the U.S. Government. Private entities or the State of Texas retained the subsurface mineral interests on these lands. Thus, the federal government does not own any of the subsurface oil and gas rights in the park, yet the NPS is required by its laws, policies and regulations to protect the park from any actions, including gas operations, that may adversely impact or impair park resources and values. Padre Island National Seashore was created "in order to save and preserve, for purposes of public recreation, benefit, and inspiration, a portion of the diminishing seashore of the United States that remains undeveloped …". Currently, there are 12 nonfederal gas operations within the park. The park comprises 130,473 acres. Figure 1 is a region/vicinity map.

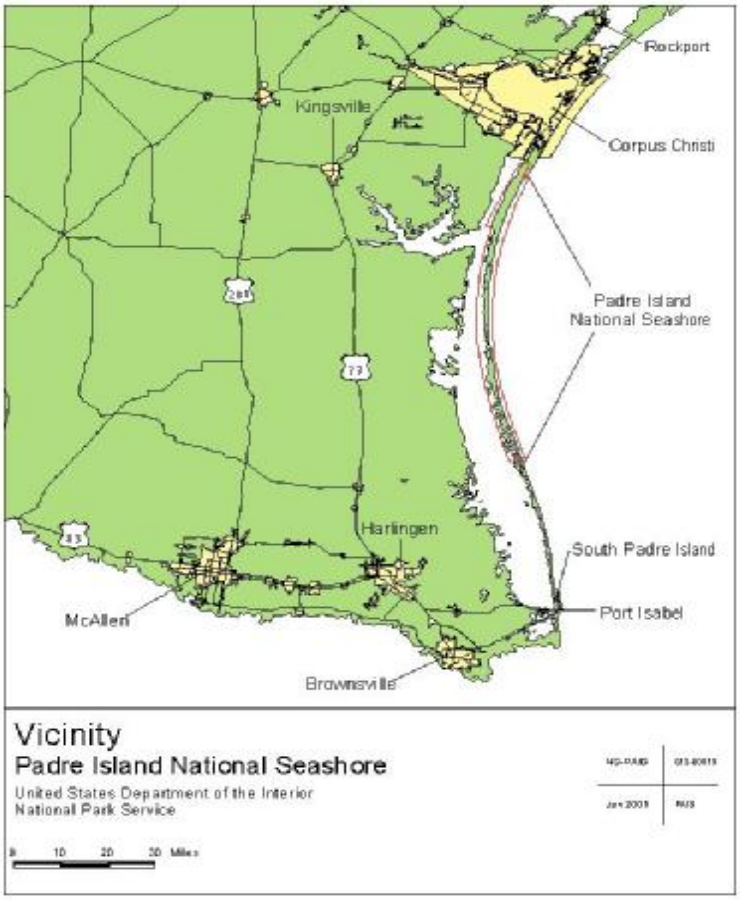


Figure 1. Region/Vicinity map depicting the location of Padre Island National Seashore in relation to the Gulf of Mexico coastline.

On November 26, 2001, BNP submitted to Padre Island National Seashore a Plan of Operations to drill and produce the Lemon/Lemon Seed Unit. The NPS reviewed and determined the plan to be substantially complete December 13, 2001. BNP has revised the Plan of Operations to include all NPS recommendations. The NPS must decide whether to approve the plan and if additional mitigation measures are needed.

The analysis area in this EA for evaluating direct and indirect impacts includes:

- The direct area of impact would include the access road from the park entrance via paved Park Road 22, along 12.5 miles on the Gulf beach vehicle corridor to a proposed cut through the foredunes, and then along a proposed 790-foot long caliche access road to the wellpad; and the footprint for constructing the 4.17-acre well/production pad and a 0.8-mile long by 25 to 50-foot wide corridor for a flowline.
- The indirect area of impact for each park resource or value could vary for each impact topic; but generally would not extend 1500 feet beyond the wells (NPS has selected the analysis area for natural soundscapes and a 100-foot corridor around the access road and the flowline.
- For State and Federally Protected Species, the analysis area for direct and indirect impacts is defined for each species in the Environmental Consequences section of this EA.
- For the impact topic, "Nonfederal Oil and Gas Development," the analysis area includes the effect on BNP and the mineral owner to meet NPS permitting requirements (including cost and time involved for BNP to prepare a plan of operations and contractor efforts, increased mitigation measures and reclamation requirements inside an NPS unit, the effect of proceeding or not proceeding to drill and produce the wells), and the effect of drilling and producing the 2 wells on the domestic energy supply.

The analysis area for evaluating cumulative impacts on park resources and values may extend beyond the boundaries of the park

1.1. Objectives of Taking Action

There are three objectives for this project:

- Provide BNP Petroleum Corporation, as holder of nonfederal oil and gas mineral interests, reasonable access for exploration and development.
- Avoid or minimize impacts on park resources and values, visitor use and experience, and human health and safety.
- Prevent impairment of park resources and values.

1.2. Special Mandates and Direction

The NPS evaluates project-specific proposals for oil and gas production and transportation on a case-by-case basis by applying a variety of Current Legal and Policy Requirements prior to issuing a permit under the general regulatory framework of the NPS Nonfederal Oil and Gas Rights Regulations (36 CFR 9B). The following discussion is a summary of the basic management direction the NPS follows for permitting nonfederal oil and gas operations in units of the National Park System.

1.2.1. NPS Organic Act and General Authorities Act - Prevention of Impairment

The NPS Organic Act of 1916 (16 U.S.C. § 1, *et seq.*) provides the fundamental management direction for all units of the National Park System. Section 1 of the Organic Act states, in part, that the NPS shall:

> "…promote and regulate the use of the Federal areas known as national parks, monuments, and reservations…by such means and measure as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." 16 U.S.C. §1.

The National Park System General Authorities Act of 1970 (16 U.S.C. § 1a-1 *et seq*.) affirms that while all national park system units remain "distinct in character," they are "united through their interrelated purposes and resources into one national park system as cumulative expressions of a single national heritage." The Act makes it clear that the NPS Organic Act and other protective mandates apply equally to all units of the system. Subsequently, the 1978 Redwood Act Amendments to the General Authorities Act further clarified Congress' mandate to the NPS to protect park resources and values. The Amendments state, in part: "[t]he authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress." 16 U.S.C. § 1a-1.

Current laws and policies require the analysis of potential effects to determine whether or not actions would impair park resources. While Congress has given the NPS the managerial discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement (enforceable by the federal courts) that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise (2001 Management Policies, §1.4).

These authorities all prohibit an impairment of park resources and values. Not all impacts are impairments. An impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts. The NPS Management Policies explain that an impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

1). Necessary to fulfill a specific purpose identified in the establishing legislation or proclamation of the park;
2). Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
3). Identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute impairment to the extent that it is an unavoidable result, which cannot be reasonably further mitigated, of an action necessary to preserve or restore the integrity of park resources or values.

NPS Management Policies explain that "resources and values" mean the full spectrum of tangible and intangible attributes for which the parks are established and are being managed, including the Organic Act's fundamental purposes (as supplemented), and any additional purposes as stated in a park's establishing legislation. Park resources and values that are subject to the no impairment standard include: the biological and physical processes which created the park and that continue to act upon it; scenic features; natural visibility; natural soundscapes and smells; water and air resources; soils;

geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures and objects; museum collections; and native plants and animals. Additional resources and values that are subject to the non-impairment standard include the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system.

For these reasons, the Environmental Consequences section of this EA provides an analysis of the potential for impairment for each of the resource topics covered in this EA.

1.2.2. NPS Nonfederal Oil and Gas Regulations, 36 CFR 9B

The authority to manage and protect federal property arises from the Property Clause of the United States Constitution. The Property Clause provides that "Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States . . ." U.S. Const. Art. IV, ¶ 3, cl. 2.

In 1916, Congress exercised its power under the Property Clause and passed the NPS Organic Act, 16 U.S.C. § 1 *et seq*. Section 3 of the Organic Act authorizes the Secretary of the Interior to "make and publish such rules and regulations as he may deem necessary or proper for the use of the parks…" 16 U.S.C. § 3.

Pursuant to section 3 of the NPS Organic Act and individual park statutes, the Secretary of the Interior promulgated regulations at 36 CFR Part 9, Subpart B ("9B regulations") in 1979. The 9B regulations apply to operations that require access on or through federally owned or controlled lands or waters in connection with nonfederally owned oil and gas in all National Park System units (36 CFR § 9.30(a)).

The NPS Nonfederal Oil and Gas Rights Regulations (36 CFR 9B) and other regulatory requirements assist park managers in managing oil and gas activities so they may be conducted in a manner consistent with the NPS mandate to protect park resources and values. The application and implementation of these regulations on the ground must be assessed parkwide for each site-specific oil and gas activity to determine if these activities have the potential to impair park resources and values.

1.2.3. NPS oversight and Monitoring of Nonfederal Oil and Gas Operations

Under 36 CFR §9.37(f) "[a]pproval of each plan of operations is expressly conditioned upon the Superintendent having such reasonable access to the site as is necessary to properly monitor and insure compliance with the plan of operations." At Padre Island National Seashore, park staff patrols the beach every day during turtle nesting season, and visits certain oil and gas sites several times a week. Park resource managers conduct a monitoring oversight patrol at least two times per week. In the event of an accident or spill, BNP will notify its dispatch immediately, and BNP's dispatch will then immediately notify park resource managers. All approved plans of operations have a spill contingency plan that is reviewed and approved by the NPS.

Pursuant to 36 CFR §9.51(a) an "operator shall be held liable for <u>any</u> damages to federally-owned or controlled lands, waters, or resources, resulting from his failure to comply with . . . his plan of operations" (emphasis added). Undertaking any operations within the boundaries of a park system unit in violation of the 9B regulations shall be deemed a trespass against the United States and shall be cause for revocation of approval of an operator's plan of operations. If an operator violates a term or condition of its approved plan of operation the Superintendent has the authority to temporarily suspend the operation and give the operator the chance to cure the violation. 36 CFR §9.51(c) outlines the Superintendent's suspension authority and procedure. If an operator fails to correct any violation or

damage to federally owned or controlled lands, waters or resources the operator's approval will be revoked. 36 CFR §9.51(c)(3).

In addition to the remedies available to the NPS under the 9B regulations, an operator is also subject to the remedial provisions found in all applicable federal, state, and local laws. For instance, under 16 U.S.C. §19jj, commonly known as the "Park System Resource Protection Act," any person who destroys, causes the loss of, or injures any park system resource is strictly liable to the United States for response costs and for damages resulting from such destruction, loss or injury.

1.2.4. Approved Park Planning Documents

Approved park planning documents also provide a framework for determining how nonfederal oil and gas operations are conducted within Padre Island National Seashore.

The General Management Plan (GMP) is the major planning document for all National Park System units. The GMP sets forth the basic philosophy of the unit, and provides strategies for resolving issues and achieving identified management objectives required for resource management and visitor use. The GMP includes environmental analysis and other required compliance documentation. A GMP/Development Concept Plan (GMP/DCP) was completed along with an environmental assessment for Padre Island National Seashore in 1983.

An Oil and Gas Management Plan/Environmental Impact Statement (OGMP/EIS) was completed for Padre Island National Seashore on August 14, 2000 (PAIS 2000). The OGMP/EIS describes the overall approaches that will be implemented over the next 15 to 20 years, or longer, to manage existing and anticipated oil and gas operations, including the exploration, development and transportation of nonfederal oil and gas underlying Padre Island National Seashore, in a manner that provides for hydrocarbon development while protecting natural and cultural resources, human health and safety, and allowing for public use and enjoyment of those resources. The Oil and Gas Management Plan:

1) Identifies park resources and values most sensitive to oil and gas exploration and development disturbance, and defines impact mitigation requirements to protect such resources and values,
2) Establishes reasonable oil and gas exploration and development performance standards to protect park resources and values,
3) Develops reasonable alternatives for oil and gas development in the park and analyzes the impacts of those alternatives on park resources and values, and
4) Provides pertinent information to oil and gas owners and operators that will facilitate operations planning and compliance with all applicable regulations.

During the scoping and development of the Plan of Operations and of this environmental assessment, the planning framework provided in the park's GMP/DCP and OGMP have been followed. Table 1, below, summarizes many, but not all, of the statutes, regulations, executive orders and policies that govern the exercise of nonfederal oil and gas rights in National Park units.

Table 1. Current Legal and Policy Requirements.

AUTHORITIES	RESOURCES AND VALUES AFFORDED PROTECTION
Statutes and Applicable Regulations	
National Park Service (NPS) Organic Act of 1916, as amended, 16 U.S.C. §§ 1 *et seq.*	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources

AUTHORITIES	RESOURCES AND VALUES AFFORDED PROTECTION
National Park System General Authorities Act, 16 U.S.C. §§ 1a-1 *et seq.*	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources
NPS Omnibus Management Act of 1998, 16 U.S.C. §§ 5901 *et seq.*	Any living or non-living resource
NPS Nonfederal Oil and Gas Regulations – 36 Code of Federal Regulations (CFR) Part 9, Subpart B	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources
16 U.S.C. § 19jj (commonly referred to as the Park System Resource Protection Act)	Any living or non-living resource that is located within the boundaries of a unit of the National Park system, except for resources owned by a nonfederal entity
American Indian Religious Freedom Act, as amended, 42 U.S.C. §§ 1996 – 1996a; 43 CFR Part 7	Cultural and historic resources
Antiquities Act of 1906, 16 U.S.C. §§ 431-433; 43 CFR Part 3	Cultural, historic, archeological, and paleontological resources
Archeological Resources Protection Act of 1979, 16 U.S.C. §§ 470aa – 470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7	Archeological resources
Clean Air Act, as amended, 42 U.S.C. §§ 7401-7671q; 40 CFR Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR Part 23	Air resources
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601-9675; 40 CFR Parts 279, 300, 302, 355, and 373	Human health and welfare and the environment
Endangered Species Act of 1973, as amended, 16 U.S.C. §§ 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450	Plant and animal species or subspecies, and their habitat, which have been listed as threatened or endangered by the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service
Federal Insecticide, Fungicide, and Rodenticide Act, as amended (commonly referred to as Federal Environmental Pesticide Control Act of 1972), 7 U.S.C. §§ 136 *et. seq.;* 40 CFR Parts 152-180, except Part 157	Human health and safety and the environment
Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act), 33 U.S.C. §§ 1251 *et seq.;* 33 CFR Parts 320-330; 40 CFR Parts 110, 112, 116, 117, 230-232, 323, and 328	Water resources, wetlands, and waters of the U.S.
Historic Sites, Buildings, and Antiquities Act (Historic Sites Act of 1935), 16 U.S.C. §§ 461-467; 18 CFR Part 6; 36 CFR Parts 1, 62, 63 and 65	Historic sites, buildings, and objects
Lacey Act, as amended, 16 U.S.C. §§ 3371 *et seq.;* 15 CFR Parts 10, 11, 12, 14, 300, and 904	Fish, wildlife, and vegetation
Migratory Bird Treaty Act, as amended, 16 U.S.C. §§ 703-712; 50 CFR Parts 10, 12, 20, and 21	Migratory birds
National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. §§ 4321 *et seq.;* 40 CFR Parts 1500-1508	The human environment (e.g. cultural and historic resources, natural resources, biodiversity, human health and safety, socioeconomic environment, visitor use and experience)
National Historic Preservation Act of 1966, as amended, 16 U.S.C. §§ 470-470x-6; 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810	Cultural and historic properties listed in or determined to be eligible for listing in the National Register of Historic Places
Native American Graves Protection and Repatriation Act, 25 U.S.C. §§ 3001-3013; 43 CFR Part 10	Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony
Noise Control Act of 1972, 42 U.S.C. §§ 4901-4918; 40 CFR Part 211	Human health and welfare
Oil Pollution Act, 33 U.S.C. §§ 2701-2761; 15 CFR Part	Water resources and natural resources

AUTHORITIES	RESOURCES AND VALUES AFFORDED PROTECTION
990; 33 CFR Parts 135, 137, and 150; 40 CFR Part 112; 49 CFR Part 106	
Pipeline Safety Act of 1992, 49 U.S.C. §§ 60101 *et seq*.; 49 CFR Subtitle B, Ch 1, Parts 190-199	Human health and safety and the environment
Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 *et. seq*.; 40 CFR Parts 240-280; 49 CFR Parts 171-179	Natural resources and human health and safety
Rivers and Harbors Act of 1899, as amended, 33 U.S.C. §§ 401 *et. seq*.; 33 CFR Parts 114, 115, 116, 321, 322, and 333	Shorelines and navigable waterways, tidal waters, and wetlands
Safe Drinking Water Act of 1974, 42 U.S.C. §§ 300f *et seq*.; 40 CFR Parts 141-148	Human health and water resources
Executive Orders	
Executive Order (E.O.) 11593 – Protection and Enhancement of the Cultural Environment, 36 Federal Register (Fed. Reg.) 8921 (1971)	Cultural resources
E.O. 11988 - Floodplain Management, 42 Fed. Reg. 26951 (1977)	Floodplains and human health, safety, and welfare
E.O. 11990 – Protection of Wetlands, 42 Fed. Reg. 26961 (1977)	Wetlands
E.O. 12088 – Federal Compliance with Pollution Control Standards, 43 Fed. Reg. 47707 (1978)	Natural resources and human health and safety
E.O. 12630 – Governmental Actions and Interference with Constitutionally Protected Property Rights, 53 Fed. Reg. 8859 (1988)	Private property rights and public funds
E.O. 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, amended by Exec. Order No. 12948, 60 Fed. Reg. 6379 (1995)	Human health and safety
E.O. 13007–Indian Sacred Sites, 61 Fed. Reg. 26771 (1996)	Native Americans' sacred sites
E.O. 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999)	Vegetation and wildlife
E.O. 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001)	Migratory birds
E.O. 13212 - Actions To Expedite Energy-Related Projects (2001)	
Policies, Guidelines and Procedures	
NPS Management Policies (2001)	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources
Department of the Interior (DOI), Departmental Manual (DM) 516 –NEPA policies	Human health and safety and the environment
DOI, DM 517 - Pesticides	Archeological and prehistoric resources, historic resources, Native American human remains, and cultural objects
DOI, Onshore Oil and Gas Order Number 2, Section III, Drilling Abandonment Requirements, 53 Fed. Reg. 46,810-46,811 (1988)	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, socioeconomic development, and visual resources
NPS Director's Order (D.O.) –12 and Handbook – National Environmental Policy Act (2001)	Cultural, historic, and ethnographic resources
NPS D.O. - 28 – Cultural Resource Management (1997)	Natural resources and human health and safety
NPS 66 – Minerals Management Guideline (1990)	Natural resources
NPS 77 – Natural Resources Management Guideline	Wetlands

AUTHORITIES	RESOURCES AND VALUES AFFORDED PROTECTION
(1991)	
NPS D.O. 77-1 – Wetland Protection	Floodplains
NPS Special Directive 93-4 – Floodplain Management Guideline	Cultural and historic resources
Secretary of the Interior's "Standards and Guidelines for Archeology and Historic Preservation," 48 Fed. Reg. 44716 (1983), also published as Appendix C of NPS D.O. 28 – Cultural Resource Management	Native American Tribal rights and interests
Government-to-Government Relations with Native American Tribal Governments, Presidential Memorandum signed April 29, 1994	

1.3. Issues and Impact Topics Evaluated

Early in the planning and development of the Plan of Operations by BNP, the NPS met with BNP and its contractor, Belaire Environmental, Inc. (BEI), to identify resources, values, and other concerns that could be potentially impacted by drilling and producing the Lemon/Lemon Seed Unit wells. In addition, early input from other federal, state and local agencies was sought. Scoping with the U.S. Fish and Wildlife Service (FWS), U.S. Army Corps of Engineers (COE), and Texas Natural Resources Conservation Commission (TNRCC) involved contacts by telephone, written correspondence, and meetings at the proposed project location within Padre Island National Seashore. Scoping involved defining appropriate alternatives, impact determinations, mitigation measures, and identification of major issues. Based on scoping, the NPS identified the following park resources, values, and other concerns for evaluation in this EA:

- nonfederal oil and gas development
- air quality
- geology and soils
- water resources and floodplains
- wetlands
- vegetation
- natural soundscapes
- wildlife
- state and federally protected species
- visitor use and experience

Based on the above list of park resources, values, and other concerns identified during scoping, issue statements were developed to define problems or benefits pertaining to the proposal to drill and produce the Lemon/Lemon Seed Unit wells. The issue statements in Table 2, below, describe a cause-and-effect relationship between an activity and a resource, value, or concern. The issue statements were used in developing and evaluating alternatives.

Table 2. Issue Statements.

Impact Topic	Issue Statement
Nonfederal Oil and Gas Development	• The NPS permitting process, regulatory requirements, and operating stipulations generally increase the cost to operate on parklands, compared to operating on non-NPS lands. These increased costs could reduce income to mineral owners (or mineral interest holders) and operators, and influence an owner's or operator's decision to defer, modify, undertake as planned, or not conduct certain nonfederal oil and gas operations. • Production of the nonfederal mineral interest would contribute hydrocarbon resources to meet the nation's domestic energy demands.

Impact Topic	Issue Statement
Air Quality	• Construction and maintenance of roads, wellpads, production facilities, and pipelines; vehicle use on and off paved roads; and exhaust from combustion of gasoline and diesel-powered vehicles and equipment used for drilling and production operations would increase emissions of particulate matter which could affect air quality, including visibility in the general vicinity of the operations. • Maintenance activities, including the application of herbicides for vegetation control on and around operations sites, would emit pollutants, including nitrogen oxides, volatile organic compounds, carbon monoxide, sulfur dioxide, particulate matter, and objectionable odors. These emissions could degrade air quality within the park and could contribute toward regional air quality degradation. Nitrogen oxides and volatile organic compounds are primary precursors to ozone formation, which, depending on ambient concentrations, can have damaging effects on some vegetation and on the health of humans and wildlife.
Geology and Soils	• Grading and leveling of hummocky uplands and barrier foredunes for the oil and gas access road and wellpad and the placement of nonnative materials (caliche) on the access road and wellpad would result in soil and sand compaction and loss of productivity on approximately 4.14 acres for the duration of the oil and gas operation(s). • Construction of an oil and gas access road through the foredunes would modify dune structure and eolian sand transport, and could result in the funneling of water through the dunes during extremely high tides. • The release of hydrocarbons or other contaminating and hazardous substances from vehicles, equipment, and pipelines during exploration and production operations, could alter the chemical and physical properties of the soil and sand in the vicinity of the operation(s). Changes in the soil and sand properties could result directly from contact with contaminants on-site, or indirectly, via runoff from contaminated areas. • Vehicle use along the Gulf Beach, particularly from heavy vehicles transporting the drilling rig, water, and drilling muds for disposal outside the park, could cause rutting and compaction of the sands on the beach.
Water Resources and Floodplains	• Vehicle use; removal or modification of vegetation; and surface disturbance associated with construction, maintenance and use of the oil and gas access road, wellpad, production facility, and flowline could alter surface and subsurface drainage patterns in the vicinity of operation(s). • The release of hydrocarbons and contaminating or hazardous substances from vehicles, equipment, or pipelines used for exploration and production operations could degrade water quality. • The siting, maintenance, and use of the oil and gas access road, wellpad, production facility, and flowline in the floodplain, or the release of hydrocarbons and contaminating or hazardous substances from these operations, could adversely affect floodplain functions, values and uses, including: the natural moderation of floods, water quality, sediment control, ground water recharge or discharge, fish and wildlife habitat, maintenance of biodiversity, recreational opportunities, and natural beauty. • Reclamation of the oil and gas access road and wellpad could adversely affect water quality and floodplain functions, values and uses over the short-term. However, long-term benefits include the re-establishment of surface and surface water flow, the control of non-native vegetation, and

Impact Topic	Issue Statement
	re-establishment of native vegetative communities.
Wetlands	• Construction of the flowline through 0.03 acre of an emergent wetland would result in vegetation removal and alteration of the surface and subsurface hydrology of the site for approximately one year. • Reclamation activities that re-establish the contours of the area, restore surface and subsurface water flow, control non-native vegetation, and re-establish native vegetative communities would restore natural and beneficial wetland functions, values, and uses.
Vegetation	• Vegetation would be totally removed on 9.0 acres for the construction of an oil and gas access road, wellpad, production facility, and flowline. Vegetation removal could change the structure and composition of vegetative communities in the project area; alter wildlife habitat and species composition; increase storm runoff; and increase soil and sand erosion. • Construction and use of the oil and gas access roads, wellpad, production facility, and flowline could disrupt the surface, and subsurface water flow that is necessary to maintain vegetative communities. • The release of hydrocarbons and contaminating or hazardous substances could damage or kill vegetation directly, via contact with contaminants on-site, or indirectly, via pathways from contaminated areas. • Disturbances/removal of native vegetation could lead to the unintentional spread and establishment of non-native plant species transported in or on drilling and maintenance equipment. • Reclamation of the oil and gas site could re-establish native vegetative communities and surface and subsurface drainage patterns necessary to support vegetative growth.
Natural Soundscapes	• Vehicles and equipment used for construction and maintenance of the oil and gas access road, wellpad, production facility, and flowlines could result in increased noise, adversely affecting wildlife and visitor uses and experience
Wildlife	• Oil and gas activities, including vehicle use and the construction, maintenance, and use of the oil and gas access road, wellpad, production facility, and flowline could increase predation in open areas; directly harm or kill wildlife; and disrupt wildlife feeding, denning, nesting, spawning/reproduction, and other behavior. Oil and gas activities could also result in avoidance of the area by wildlife due to increased noise and human presence. • Loss or modification of wildlife habitat could occur from the construction of the oil and gas access road, wellpad, production facility, and flowline. These activities could increase edge effects, increase human access, and alter wildlife species, composition, and migration. • Liquids that collect in secondary containment structures at the oil and gas production site could attract, harm, and possibly kill birds. • The release of hydrocarbons and hazardous or contaminating substances from vehicles, drilling and production equipment, and pipelines could injure wildlife. The adverse effects could become worse over time if wildlife species ingest the contaminants and are consumed by other wildlife species. • Heavy equipment used for reclamation operations could injure or kill wildlife over the short-term. However, reclamation of oil and gas sites over the long-term could re-establish native vegetative communities and surface and subsurface water quality and quantity

Impact Topic	Issue Statement
	that support wildlife populations.
State and Federally Protected Species	• Trucks driving along the Gulf beach could compact the sand, which would make it difficult for the sea turtles to dig a nest cavity. • Trucks (both commercial and private vehicles) driving along the Gulf beach could run over sea turtles, egg clutches and hatchlings, and other T&E species (e.g., birds). • Deep ruts made from large commercial vehicles could be an obstacle to sea turtle during nesting and to hatchlings moving towards the sea. Hatchlings could become vulnerable to depredation, desiccation, and exhaustion. • Noise, artificial lighting, and other nighttime activities during drilling operations could affect other T & E wildlife species. • Noise, odors, artificial lighting, and vibrations could interfere with the imprinting process of the hatchling sea turtles.
Visitor Use and Experience	• Oil and gas operations could pose a threat to human health and safety from the use of the Gulf Beach by commercial vehicles (particularly vehicles with less maneuverability and visibility); hazardous equipment at wells and production facilities; and the release of hydrocarbons and hazardous or contaminating substances. Spilled or released hydrocarbons and contaminating or hazardous substances could be inhaled, absorbed, or ingested by human beings. • The oil and gas operations could adversely affect air quality; alter scenic resources and the night sky; increase background sound levels and could degrade the quality of visitor uses and experiences in the park.

1.4. Issues and Impact Topics Eliminated from Further Analysis

The following topics have been eliminated from further analysis in this environmental assessment for the reasons described.

1.4.1. Environmental Justice

Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed action would not have health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Environmental Justice Guidance (1998). Therefore, environmental justice was dismissed as an impact topic in this EA.

1.4.2. Prime and Unique Farmlands

In August 1980, the Council on Environmental Quality directed that federal agencies must assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's Natural Resources Conservation Service as prime or unique. Prime or unique farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland is defined as soil that produces specialty crops such as fruits, vegetables, and nuts. There were no prime or unique farmlands located in Padre Island National Seashore; therefore, prime and unique farmlands was dismissed as an impact topic in this EA.

1.4.3. Cultural Resources

The National Historic Preservation Act, as amended in 1992 (16 USC 470 *et seq.*); the National Environmental Policy Act of 1969 (42 USC 4321 *et seq.*); and the National Park Service's Director's Order #28, *Cultural Resource Management Guideline (1997)*, *Management Policies, 2001* (2000), and Director's Order #12, *Conservation Planning, Environmental Impact Analysis, and Decision Making* (2001) require the consideration of impacts on cultural resources listed in or eligible to be listed in the National Register of Historic Places. The National Park Service recognizes five categories of cultural resources: historic structures; ethnographic resources; cultural landscapes; archeological resources; and museum collections.

There are no historic structures, ethnographic resources, or cultural landscapes within or near the operations area. During project scoping, a literature search was conducted to determine the extent and continuing adequacy of past archeological surveys that had been performed in the analysis area. An inventory for archeological resources was conducted as part of 3-D seismic surveys conducted in 1999 and 2000, which covered a majority of the park. Archeological data is lacking in some areas; therefore, BNP contracted for, and the NPS permitted, further archeological surveys to be conducted. William Moore and James Warren were used to survey for archeological resources in the area of the proposed project. The survey was conducted between November 27 and December 6, 2001 and found no archeological or historic resources in the survey area. The survey was submitted to the State Historic Preservation Office (SHPO) for review and approval. Receipt of the SHPO written concurrence of "no adverse affect" received March 12, 2002.

1.4.4. Local and Regional Economics

Local and regional economics was dismissed as an impact topic in this EA because the outcome of whether two wells are drilled would have negligible impact on the local or regional economies.

2.0. ALTERNATIVES

Two Alternatives, A and B, are described and evaluated in this EA. Alternative locations and strategies that were considered but dismissed from further analysis are then described. An analysis for selecting the environmentally preferred alternative is also provided. This section concludes with three summary tables comparing the two alternatives.

2.1. Alternative A, No Action

The No Action Alternative is required under the National Environmental Policy Act (NEPA) and establishes a baseline or benchmark from which to compare the effects of permitting the proposed acitity to proceed. Under No Action, the wells would not be drilled, upkeep and maintenance of the existing 12 gas operations throughout the park would continue. Truck traffic access would be along the Gulf of Mexico shoreline. Daily trips by pickup sized trucks and the periodic larger trucks removing "condensate" from holding tanks can be expected.

2.2. Alternative B, Proposed Action

Under Alternative B, Proposed Action, the NPS would approve BNP's Plan of Operations, to drill and produce the Lemon/Lemon Seed Unit wells.

Location of the Well. The surface location of well No. 1-1000S is located 150,320 feet from the north line and 1082.1 feet from the east line (Boyles Meander Line) of the Juan Jose and Nicolas Balli Survey, Abstract-10, Kenedy County, Texas. The No. 1-1008S location is approximately fifty feet south of Well No. 1-1000S at 150,372 feet from the north line and 1094.7 feet from the east line of the referenced survey. This drill site is approximately 12.5 miles south

of the end of Park Road 22 and approximately 19.5 miles east-southeast of Rivera Beach, across Baffin Bay and the Laguna Madre (Figure 2.)

Figure 2. General location of the proposed Lemon/Lemon Seed unit in relation to Padre Island National Park.

Additional maps include:

Figure 3: Surface and bottom locations of Lemon/Lemon Seed Units, wells No. 1-1000S and No. 1-1008S.

Figure 4: Proposed location of the Lemon/Lemon Seed Units, 12.5-mile marker on Padre Island National Seashore. Depicts location of access road, pad/production site, proposed pipeline, and wetland area.
Figure 5: Close-up of wetland area within the 25-foot work corridor marked

The global positioning system (GPS) measurements based on Texas State Plane Coordinate System of 1927, Texas South Zone, for the surface and bottom-hole locations (Figure 3) of the two proposed wells of the Lemon/Lemon Seed Unit are:

Lemon/Lemon Seed Unit No. 1-1000S

Surface location:	X = 2,370,294.68 E	Y = 573,000.58 N
Bottom-hole location:	X = 2,378,765.40 E	Y = 571,625.86 N

True Vertical Depth (TD)	15,000 feet
Measured Vertical Depth (MVD)	19,000 feet
Surface Offset Distance	8,579 feet

Lemon/Lemon Seed Unit No. 1-1008S

Surface location:	X = 2,370,273.32 E	Y = 572,955.37N
Bottom-hole location	X = 2,372,210.02 E	Y = 569,791.88 N

True Vertical Depth (TD)	9,200 feet
Measured Vertical Depth (MVD)	10,500 feet
Surface Offset Distance	3,709 feet

Figure 3. Surface and bottom locations of Lemon/Lemon Seed Unit wells No.1-1000S and No. 1-1008S.

Access: All vehicles used during construction, drilling, and production operations would enter the park via Park Road 22 and then proceed approximately 12.5 miles along the Gulf Beach to the proposed access road through the dunes (Figure 4). The well site would be located approximately 900 feet west of the Gulf beach. The proposed roadway would result in the filling

and leveling of 790 linear feet (21,800 square feet). Of the 790 linear feet, approximately 640 linear feet (12,800 square feet) are hummocky uplands and approximately 150 linear feet (9000 square feet) are barrier foredunes. Conventional road and foundation construction techniques would be used to construct the access road. The dune pass would be oriented southeast to north-west and built at an elevation high enough to prevent "water funneling" through the dunes during extremely high tides, but low enough to allow for long industrial sized vehicles to travel without complications.

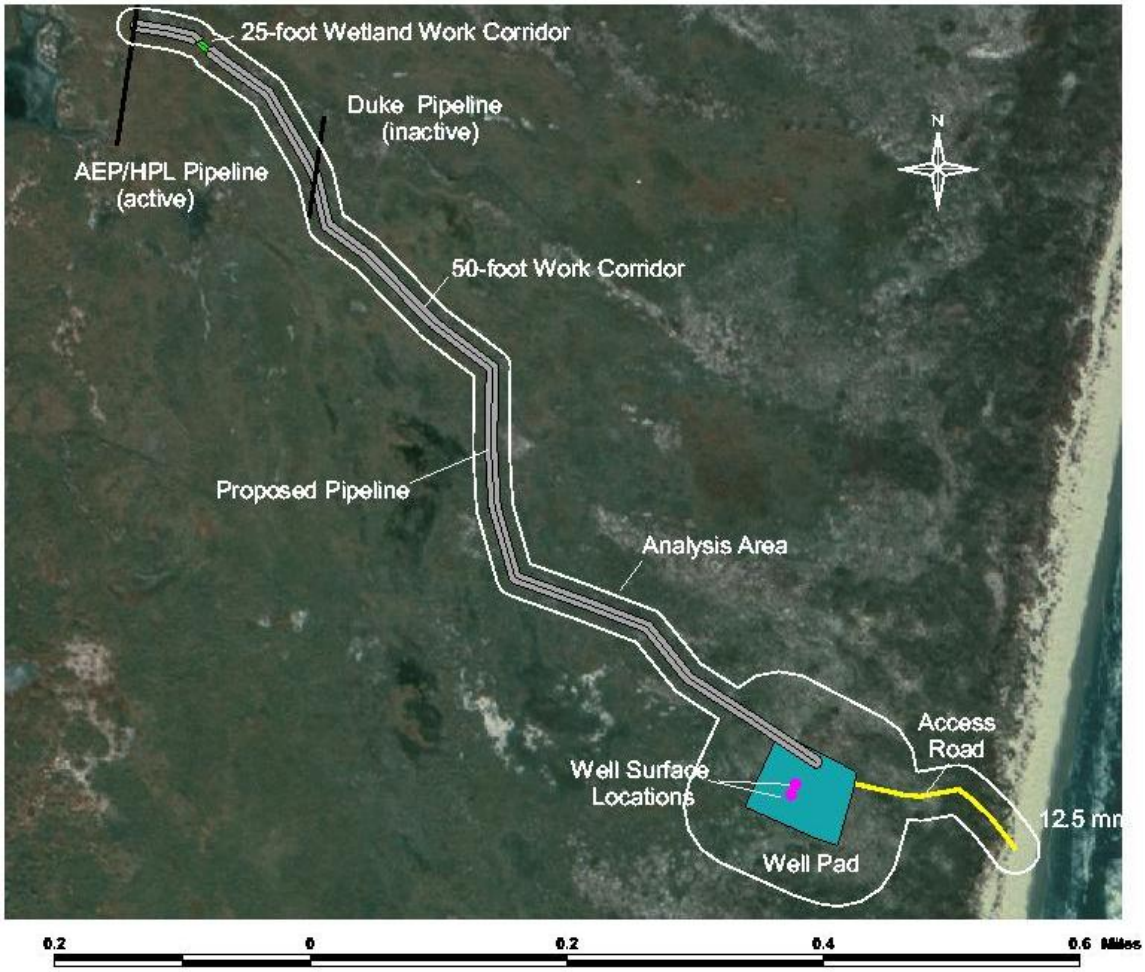


Figure 4. Proposed location of the Lemon/Lemon Seed Unit, 12.5 miles on Padre Island National Seashore. Depicts location of access road, pad/production site, proposed flowline, and wetland area.

In order to provide an idea of the level of truck traffic expected during this project, Table 3 lists the weekly number of oil and gas vehicles that were involved in a drilling operation located at Yarborough Pass. This operation spanned four months and averaged approximately 13 total trucks each day, which included four escorted large trucks and nine pickup trucks.

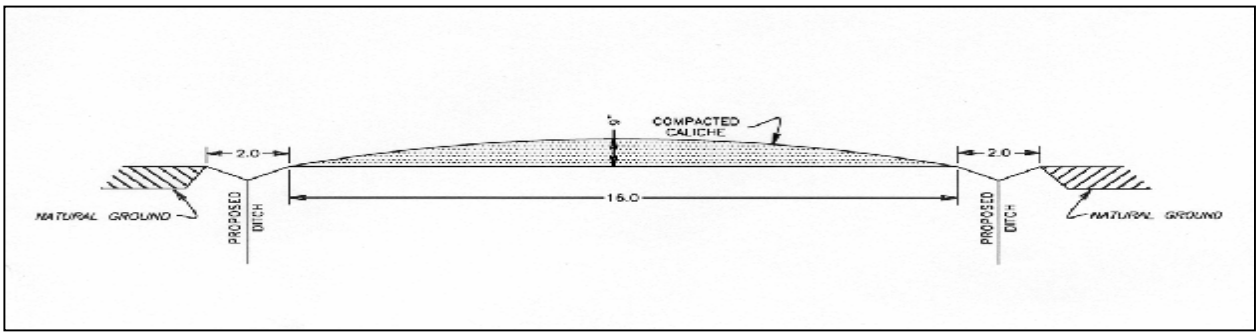
Surface Location and Wellpad: BNP's proposed drill site was selected because it would avoid adverse impacts to wetlands, tidal flats, dunes, and other sensitive resource areas. Conventional foundation construction techniques would be used to construct the 136,603-square foot (3.14 acres) polygon shaped drill site. An additional 22,500 square feet (0.5 acres) would be added to the pad area for extra storage. One bulldozer and one maintainer would be used

Survey markers of the proposed access road, foredune terminus.

Table 3. Weekly Number of Oil and Gas Vehicles Driving on the Gulf Beach to Access the Dunn-Murdock Well Location at Yarborough Pass.

Week Of	Weekly Truck Total	Pickup Trucks	Escorted Large Trucks
Feb. 3 – 9	12	10	2
Feb. 10 – 16	12	12	0
Feb. 16 – 23	11	10	1
Feb. 24 – Mar. 2	85	57	28
Mar. 3 – 9	56	33	23
Mar. 10 – 16	16	15	1
Mar. 10 – 16	16	15	1
Mar. 17 – 23	193	103	90
Mar. 24 – 30	166	126	40
Mar. 31 – April	149	89	60
April 7 – 13	128	81	47
April 14 – 20	149	94	55
April 21 – 27	122	76	46
April 28 – May 4	93	72	21
May 5 – 11	81	54	27
May 12 – 18	74	57	17
May 19 – 25	69	52	17
May 26 – June 1	79	49	30
Total 117 days	**1,495**	**990**	**505**

first to level the roadbed and drilling pad. After leveling, a lease crew would cover the pad with a 20 mm thick polyethylene protective liner. Eight to ten dump trucks would be used to place caliche on the road and pad. The caliche would be spread with a bulldozer and leveled with a maintainer. A compactor and a water truck would be used to compact the caliche and water the road and pad. A 3-foot high berm would be constructed around the perimeter of the pad area for containment. Caliche berms would also be constructed around the diesel tanks for containment.



Typical Road Cross Section.

All equipment, machinery, and living quarters would be placed within the 159,103 square foot pad area. This pad would be utilized for both wells, and may also be used for additional drilling in the future. Should the well be productive, all production equipment would be placed within the pad area. If a production facility were constructed, the remaining pad area would be reduced to a rectangle with the approximate dimensions of 340 feet x 210 feet x 320 feet x 210 feet, or 69,300 square feet. In the previously developed 89,803 square-foot area the ground would be reclaimed to original condition.

This isolated area remains virtually untainted by artificial light sources. Drilling the well, however, requires work around-the-clock. Therefore, artificial lighting must be brought in to facilitate work during the night in a safe work environment. BNP would strive to maintain a balance between human safety, preservation of the park's night sky, and reduction of impacts to wildlife. To the extent possible, artificial lighting would be directionally focused on the work site, and light bulbs would be recessed inside concave shields to avoid unnecessary glare.

Use of Water for Drilling: BNP proposes to drill a temporary water well on the wellpad to deliver the approximately 1,302,000 gallons of water needed to drill the wells. BNP would provide a means for metering water volume at Padre Island National Seashore's request. The water well would be drilled into the Goliad formation, between 1,400 feet and 1,700 feet. Providing this well has sufficient volume, BNP would not have to purchase water from the park. If a water supply well is maintained at the location, BNP would adjust the surface casing setting depth for Well #1008S as a precautionary well control measure to minimize the risk of communication developing to the water supply well. Instead of setting the surface casing at 1750 feet, the operator would set surface casing at approximately 2200 feet, thereby providing nearly 500 feet of vertical separation between the casing shoe and the total depth of the water supply well.

The potential for a successful drilling of a water source well at the location has yet to be determined. Previously, Sun Oil plugged their Dunn-McCampbell #1A well to a water source well with perforations in the Goliad sand from 1,530 feet to 1,560 feet. No information regarding fresh water production rates has been found. The Laguna Madre well #1 near Yarborough Pass was also used as a water source well according to Texas Natural Resource Conservation Commission (TNRCC), but no information regarding its production is available. Drilling a water

source well at the Dunn-Murdock No. 1 location at Yarbrough Pass was successful. A similar well will be attempted at the Lemon/Lemon Seed location. If a water source well cannot be made, two options are available to obtain the needed water: pump water or fill water trucks from the Dunn-Murdock #1 location to the Lemon/Lemon Seed location; or, obtain water from the fire hydrant at the south end of Park Road 22. A check valve and water meter would be installed at the hydrant. Padre Island National Seashore would be paid for the water at the end of the drilling operation. The water would be hauled by transport to the location. At 1,300 barrels per load, this would require approximately 155 loads of water hauled during the course of drilling Well No.1-1000S and approximately 85 loads while drilling Well No.1-1008S.

BNP plans to file an application with the Railroad Commission of Texas (TRRC) for a minor permit for annular disposal of drilling mud for both Well No.1-1000S and No. 1-1008S using the annulus of Well No.1-1000S. Should the TRRC deny the application, or if injection were prevented for some mechanical reason (i.e., excessive injection pressure, failure of casing integrity, etc.), BNP would be required to haul the excess liquids by transport out of the park to an approved disposal site. The estimated volumes of liquids are 9,000 barrels for Well No. 1-1000S and 3,000 barrels for Well No.1-1008S. At an average of 100 barrels per load due to weight restrictions, this equals 120 loads hauled from the site while drilling the two wells.

Production Facility: Should BNP's proposed well prove to be productive, the production facilities would be placed on the existing wellpad. The pad size would be reduced to 340 ft. x 320 ft. x 210 ft., approximately half the original size. By placing the production facility on the same pad as the well, no additional impacts to previously undisturbed habitats would occur. Production could continue for up to twenty years.

Pipeline: There are two pipelines in the area of proposed operations (Figure 4). Duke Energy owns a currently inactive ten (10) inch pipeline approximately 2,400 feet west of the proposed wellsite. AEP (formerly Enron/HPL) operates and maintains an active twelve (12) inch pipeline that lies approximately 3,300 feet west of the proposed wellsite. The pipelines extend north and south on the island for several miles from the location. BNP plans to tie into either of these existing pipelines**.** The construction of BNP's proposed flowline route would briefly impact approximately 3280 linear feet for the Duke pipeline, or 4300 feet for the AEP pipeline of hummocky uplands. Prior to the tie-in point for the AEP pipeline, the route crosses an emergent wetland. Utilizing the 50-foot construction corridor, 2,765 square feet (0.0636 acres) of emergent wetland would be impacted. The NPS stipulation of a 25-foot construction corridor in wetlands reduces the impacts to 1,382.5 square feet (0.032 acres) (Figure 5).

The new line, ranging from a minimum of three (3) to a maximum of (10) inches, is contingent on the production rates obtained during the testing phase of the well. A ditch of approximately 24 inches wide and 42 inches deep would be dug from the wellpad to the tie-in point. The procedure used to tie-in the pipeline is a "hot tap". This method allows pipelines that are in service to be connected without the contents being released. A 15-foot by 15-foot (225 square foot) excavation will be required to make the tie-in. Any ground water that seeps into the excavation would be pumped out using PVC well points and diaphragm pumps. The liquids would be diverted and filtered through a silt screen and hay bales before being released onto the surrounding area. Any contaminated liquids or soils would be removed and hauled to a State-approved disposal site.

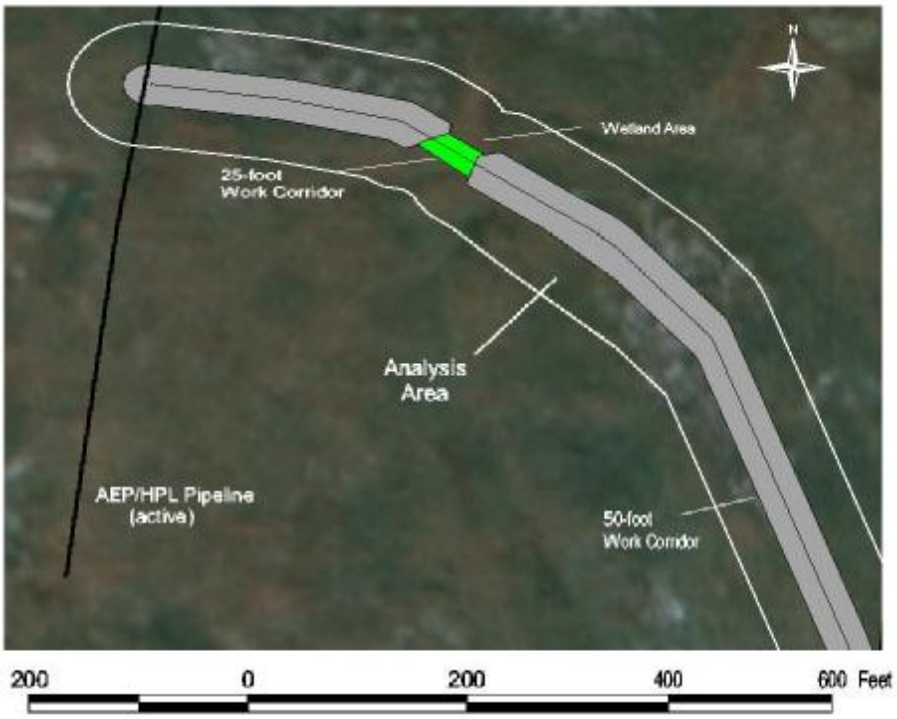


Figure 5. Close-up of wetland area with 25-foot work corridor marked.

Reclamation Plan: As soon as possible after completion of approved operations but no later than six (6) months thereafter unless a longer period of time is authorized by the Regional Director, BNP would initiate reclamation. [36 CFR 9.39(a) (2)]. Reclamation would follow both the drilling and production phases of operations. After drilling the wells, and if the wells are placed in production, the wellpad size would be reduced for the production phase, as described above under "Production Facility."

At the completion of production operations, the wells would be plugged, and all above ground structures, equipment, and other man-made debris resulting form operations would be removed; and any contaminating substances would be removed or neutralized. [36 CFR 9.39 (a)(2)]. The pad and road areas would be re-contoured as near as possible to the original contour. The re-contoured ground would be fertilized at 40 pounds per acre of 40/30/0 fertilizer, the area ripped to 18 inches, and mulched with native hay containing seeds from the previously existing vegetation. During annual monitoring efforts, undesirable species would be controlled either by herbicide application or hand/tool removal, as approved by the NPS. Restored areas would be monitored annually until 70 percent coverage of targeted species is achieved. An annual report would be submitted to the park documenting restoration activities and results. Monitoring would cease after 70 percent of the original vegetative coverage of two target species, seacoast bluestem (*Schizachyrium scoparium* var. *littoralis*) and gulfdune paspalum (*Paspalum monostachyum*), was achieved or after the site had been approved by the park Superintendent.

Mitigation Measures: In order to reduce the impacts to park resources and values, the mitigating measures described in Table 4 and Table 5, would be applied to the gas operations. BNP and its contractor, BEI, sought the views and advice of personnel of Padre Island National Seashore, COE, and other experts. BNP and BEI also relied on the recommendations of the park's Final Oil and Gas Management Plan/Environmental Impact Statement (DOI 2000) for

operating standards and other information. As a result of these and other efforts, BNP has agreed to apply all mitigation measures outlined in Table 4. The location of each mitigation measure in the Plan of Operations is included for ease of reference.

Table 4. Mitigation Measures under Alternative B, Proposed Action.

Number	Actions	Mitigation Measures under Alternative B, Proposed Action	Reference
1	Pre-activities	Direct impacts to wind-tidal algal flats, seagrass beds, trees, and cultural resources would be avoided by directionally drilling the well from a location using a polygon-shaped well/production pad which would utilize approximately 159,103 square feet (3.67 acres) of hummocky uplands and 0.5 acres for the 790 foot long access road.	Section X, Item D (1), page 39
2	Pre-activities	BNP would educate all employees and contractors regarding the need for and ways and means of minimizing disturbances to the land, natural and cultural resources, wildlife, and visitors at Padre Island National Seashore.	Section X, Item D (3), page 39
3	Pre-activities	BNP would print a Padre Island National Seashore approved list of conduct and operating procedures while working within the park to be reviewed by all BNP related personnel before they begin working inside the park to minimize disturbances to the land, natural and cultural resources, wildlife, and visitors at Padre Island National Seashore.	Section X, Item D (50), page 43
4	Pre-activities	In accordance with Padre Island National Seashore's approved Hurricane Preparedness and Evacuation Plan, BNP would secure the well site in the event of a hurricane. If a hurricane or tropical storm is within 540 miles or 36 hours of the operation site and the operation site is predicted to be in the severe weather area, BNP would fill the hold with drilling mud; set drill pipe slips safety clamps and safety valves 50 ' above the deepest casing string; lay down and secure drill pipe; close and lock pipe rams and annular BOP; secure loose tools, equipment and electrical connections; lower drilling derrick; close all valves in mud system; and place generators, SCR on oilfield truck floats and chain down. If the well is producing hydrocarbons, BNP would close the storm valve in the well or install backpressure valve in the tree, shut in all valves on tree, replace all hydrocarbons in storage tanks with water, and remove or secure all lose equipment and supplies. In the event of a hurricane, this mitigation measure is intended to result in protecting human life and property, reducing flood hazards, and protecting natural floodplain values.	Section X, Item D (29) page 41
5	Pre-activities	Collection and sampling of soils and surface and ground water would be performed following NPS protocols (Exhibit D) prior to the start of construction, to establish baseline conditions, and at the completion of operations, to determine if	Section VII, Item E, page 28;Section X, Item A

Number	Actions	Mitigation Measures under Alternative B, Proposed Action	Reference
		contaminating substances are present in concentrations that pose a threat to wildlife populations or human health, or would jeopardize reestablishment of native vegetation.	(2), page 33, and Item D (43), page 43
6	Pre-activities	BNP would have in place fire suppression equipment to prevent wildfires.	Section X, Item D (30), pages 41& 42
7	Pre-activities	BNP has included a Contaminating or Toxic Substance Spill Control Plan in the Plan of Operations to describe actions to be performed in the event of an oil spill, brine spill, release of drilling fluids, blow-out or release of any toxic substance.	Section VI, pages 24-27, Section X, Item D (39), page 42
8	Pre-activities	Should contaminated soils be found, the contaminated soil would be excavated to clean soil and hauled to a state-approved off-site disposal facility where applicable. The excavation would be filled with clean native soil. If necessary, contaminated soils would be remediated on-site using Padre Island National Seashore -approved remediation methods.	Section VII, Item F, page 28; Section X, Item D (44), page 43
9	Pre-activities	The pipeline route was selected to minimize impacts to wetlands. The construction of the proposed pipeline route would impact approximately 4,245 linear feet (212,235 square feet) of hummocky uplands and 55.3 linear feet (1,387.5 square feet) of emergent wetlands, over the short-term until restoration of wetlands is successfully achieved within 1 growing season.	Section X, Item D (2), page 39.Section X, Item E, Land Features, page 44
10	Construction	If at any time, any unknown cultural resource were discovered during the conducting of approved operations, and such resource might be altered or destroyed by the operations, the operator would immediately cease operations in the immediate area and notify the Superintendent. The operator must leave the discovery intact until the Superintendent grants permission to proceed with the operations. Before any further activities occur, a qualified cultural resource expert would assess the cultural resources, evaluate their National Register eligibility, and consult with the State Historic Preservation Officer.	Section X, Item D (9), page 40
11	Construction	BNP would cut and store vegetation before ground-disturbing activities for use later in mulching and native seeding activities for reclamation/re-vegetation. All equipment would be hosed off/cleaned of mud/soils/plant debris prior to entering the park to reduce potential introduction of non-native seed/pests into the park.	Section X, Item D (8), page 40
12	Construction, Duration of Operation	The dune pass would be oriented southeast to northwest in order to reduce sand accumulation over the road during the term of operations and facilitate restoration of dune line.	Section V, Item O (4), page 23; Section X,

Number	Actions	Mitigation Measures under Alternative B, Proposed Action	Reference
			Item D (48), page 43
13	Construction, Duration of Operation	During construction BNP would prevent unauthorized visitors from entering the access road either by installing a warning sign, installing a gate, or stationing a human monitor at the entrance. Once all drilling is complete, a gate would be installed across the entrance of the access road to keep unauthorized visitors out of the production facility.	Section V, Item O (4), page 23; Section X, Item D (48), page 43
14	Construction	BNP would stabilize the dune pass side slopes as described in the Plan of Operations, immediately after cutting and leveling.	Section V, Item A, page 8 Sect. X, Item D (49), p.43
15	Construction	BNP proposes to install culverts, as needed, along the proposed 790-foot access road, where fill may directly affect surface water run-off. Culvert locations would be selected to minimize alteration of natural surface drainage patterns and would be approved by the National Park Service.	Section X, Item D (5), page 39; and Section X, Item E. Water Resources, page 45
16	Construction, Maintenance	BNP would maintain the 790-foot long access road by keeping it passable with a maintainer on an as-needed basis to minimize the potential of vehicles driving off the road.	Section V, Item K (13), page 30; Section X, Item D (32), page 42
17	Construction	During construction and drilling, BNP would utilize a dispatcher at a suitable site approved by Padre Island National Seashore (i.e.: Malaquite Parking lot, Gulf beach at the end of Park Road 22) to help regulate the flow of traffic up and down the beach. BNP representatives at the well site would be able to communicate with the dispatcher and would be able to report on existing conditions (i.e.: traffic, tides, etc.) further down the beach. The dispatcher would maintain logs of all personnel entering the project and would supply copies of the log to Park personnel at their request but at least weekly. The dispatcher would provide each driver a copy of BNP/Padre Island National Seashore requirements for traffic, environmental and public safety while in the park.	Section X, Item D (51), page 43
18	Construction	Throughout the drilling operations, a bulldozer would be used to assist vehicles in the transportation of personnel, services and materials, and a maintainer would be on-site to smooth out any rutting that may occur.	Section V, Item B, page 9; Section X, Item D (16), page 40
19	Construction	After leveling the access road and pad area, a 20-millimeter thick polyethylene protective liner would	Section X, Item D (15),

Number	Actions	Mitigation Measures under Alternative B, Proposed Action	Reference
		be placed on the pad area. A 3-foot high caliche berm would be constructed around the perimeter of the pad for emergency containment. The berm and liner would provide temporary containment of spills and fires and prevent the downward movement of fluids through the soil from reaching the ground water.	page 40, Item E, Soils, page 44
20	Construction	An 8-foot diameter by 8-foot deep corrugated steel cellar would be placed around Well No. 1000S, and a 6-foot diameter by 6-foot deep corrugated galvanized steel cellar would be placed around Well No. 1008S. The cellars are designed to collect spilled contaminating substances and facilitate their removal. Drainage ditches would be dug (12 inches wide and 8 inches deep) to route all runoff to the cellars. A portable sump pump would be used to pump the gathered liquids to steel tanks for re-use or disposal.	Section V, Item a, page 9; Section X, Item D (13), page 40
21	Construction	A temporary, three-strand, barbed-wire fence would be placed around the perimeter of the project, prior to when the pad is constructed, to deter unauthorized persons from entering the operations area during drilling and completion operations. If production were established, a gate and permanent chain link fence would be installed around the production facilities of a design specified by the Superintendent.	Section V, Item N (6), page 22; Section X, Item D (19), page 41
22	Drilling	To the extent possible in regard to rig scheduling and availability, BNP intends to use a diesel electric (SCR) rig to drill the well to reduce impacts to the natural soundscape.	Section X, Item D (6), page 39
23	Drilling	After setting surface casing and installing the braidenhead, a blowout preventer would be installed on the well. Additional well control equipment would include a choke manifold equipped with a hydraulic, remote-controlled, adjustable choke. This mitigation would reduce the potential of a well blowout.	Section V, Item C (1) and (2), page 10; Section X, Item D (17), page 40
24	Drilling	BNP would utilize a water-based drilling mud for drilling the well, reducing the amount of hazardous substances and the likelihood of contamination.	Section X, Item D (11), page 40; Section X, Item E, page 47
25	Drilling	Lost circulation mud additives would be used to prevent and control lost circulation, reducing the time needed to drill.	Section II C (5), page 5; Section X, Item D (12), page 40
26	Drilling	To prevent accumulation of oil and other materials deemed to be fire hazards, all flammable liquids (i.e. condensate, compressor oil, etc.) would be stored in steel or fiberglass tanks and contained	Section V, Item N (8), page 22; Section X,

Number	Actions	Mitigation Measures under Alternative B, Proposed Action	Reference
		inside the firewall or a berm at the central facility. All materials not necessary for the operation of the well would be removed. Any surplus or emergency materials or supplies that need to be kept at the well site would be stored at the central facility in a locked storage shed or parts box. All containers would be labeled as to their contents.	Item D (37), page 42
27	Drilling	A closed loop "zero discharge system" would be utilized for drilling the well. No earthen pits would be utilized. All mud, drill cuttings, sewage and produced water would be collected in steel tanks for re-use or hauled by sealed dump trucks for disposal at state-approved disposal facilities outside of the park boundaries, or disposed down the well annulus. This measure would reduce the likelihood of accidental death to migratory birds and other animals.	Section V, Item D (2) and (3), page 12 & 13; Section VII, Item B, page 28; Section X, Item D (18), page 41
28	Drilling	The following methods would be applied to prevent leaks and spills of hydrocarbons and produced water: All separators would be equipped with pressure relief valves that vent to the water tank; the inside wing valve on the tree would be equipped with a pressure controlled hi-lo safety shut-off actuator; all tanks would be equipped with liquid level controls to prevent overflow; and cathodic protection would be installed at each end of the proposed pipeline.	Section IIC 5(a), page 5; Section X, Item D (10), page 40
29	Drilling, Production	Signs would be posted at the entrance of the access road, on the tree, and on the tank battery giving operator name, lease name, well number, and Railroad Commission of Texas ID number. BNP would display a public information sign that would generally describe the management of oil and gas exploration within Padre Island National Seashore, and the important relationships between Padre Island National Seashore, the general public, and oil and gas exploration. Signs would be posted as necessary on the flowline showing operator name and telephone number. If the well were produced, signs would be posted at the entrance prohibiting public access and smoking and requiring safety equipment.	(PO) Section V, Item N (5 & 7), page 22; Section X, Item D (34), page 42
30	Production	A tank battery and a berm or "firewall" would be constructed and maintained to contain 1.5 times the volume of the largest tank, and an impermeable liner would be installed at the tank battery to protect soils and ground water.	Section V, Item K (2), page 19; Section X, Item D (21), page 41
31	Production	During production, the gauger would check the facilities daily for leaks, damage, corrosion, etc. and repair as needed. If leaks, damage, etc. were found, the gauger would report the status to Padre Island National Seashore staff upon leaving the site.	Section V, Item K (6)(c), page 20; Section X, Item D (26), page 41

Number	Actions	Mitigation Measures under Alternative B, Proposed Action	Reference
32	Production	During production, the gauger would check supply gas pressure daily. A hi-lo pressure sensor would be installed at a strategic point in the flowstream to monitor the system pressure. Should system pressure go above or below the safe range of operating pressure set by a technician, the sensor would trip a relay that actuates the safety valve, shutting in the well.	Section V, Item K (7)(C), page 20; Section X, Item D (27), page 41
33	Production	During production, and as the reservoir depletes and compressors are placed at the central tank battery to maintain the gas production rates, all compressors would be equipped with hospital mufflers to reduce noise levels and oriented so that the exhaust faces away from prevailing wind direction (SE).	Section V, Item D (30), page 41; Section X, Item D (31), page 42
34	Production	If shut-in of the well occurred and drilling or production operations were suspended for 24 hours or more but less than 30 days, the drill pipe would be run in the hole to approximately 100 feet above the last casing depth. The pipe rams would be closed and locked, and at least one safety valve would be installed in the top of the drill pipe and closed.	Section V, Item N (3) (a), page 22; Section X, Item D (35), page 42
35	Production	If production operations should be suspended for 30 days or more, a backpressure valve would be installed in the tree, the tree gate valves would be closed, and the valve handles would be removed.	Section V, Item N (4), page 22; Section X, Item D (36), page 42
36	Maintenance	BNP would plant native willow shrubs or trees around the production facility to minimize visual impacts to visitors. Plantings of native trees or shrubs would also provide and perpetuate valuable habitat for migratory birds.	Section X, Item D (24), page 41
37	Maintenance	Vegetation growth within the facility and along access road would be maintained using mowers and hand tools to minimize threats from wildfire.	Section V, Item K (6) (g), page 19; Section X, Item D (28), Page 41
38	Reclamation	The well would be plugged in compliance with NPS standards (Federal Onshore Oil and Gas Order No. 2) and Railroad Commission of Texas requirements. These standards ensure protection of useable quality aquifers.	Section V, Item L, pages 20-21; Section X, Item D (40), page 43
39	Reclamation	Reclamation of the site would be initiated as soon as possible following completion of operations, and no later than six months unless the Regional Director authorizes a longer period of time. BNP would reduce the pad size following drilling operations as feasible for production operations.	Section VII, Items A, D page 28; Section X, Item D (39), page 42

Number	Actions	Mitigation Measures under Alternative B, Proposed Action	Reference
		All imported fill materials used to construct the access road and pad would be loaded in dump trucks and hauled offsite for disposal or re-use, and the liner would be removed and hauled off for disposal.	
40	Reclamation	All disturbed areas, including any rutting deeper than one inch, would be re-contoured and re-vegetated.	Section X, Item D (42), page 42
41	Reclamation	Some soils and sands from outside Padre Island National Seashore on Padre Island may be hauled in to achieve pre-project contours or to restore any spill clean-up areas. Such soils and sands would be similar in character to pre-project soils and sands with regards to particle size, free of unacceptable contaminants, certified weed-free, and approved by the Superintendent prior to purchase/use, minimize the potential for exotic species.	Section X, Item D (33), page 42; Item E, Soils, page 44
42	Reclamation	After the pad and access road have been re-contoured and the soil has been prepared, previously harvested hay, baled from the proposed access road and pad area and containing native plant seeds, would be used to revegetate the disturbed areas. If needed, additional hay for mulching and seed would be obtained by a commercial harvester approved by the NPS to prevent introduction of exotic plant species.	Section VII, Item H (2), page 29; Section X, Item D (45), page 43
43	Reclamation	Herbicide application or hand-tool removal would be used to control exotic plant species in the reclamation area, as approved by the Superintendent.	Section VII, Item H (5), page 29; Section X, Item D (46), page 43
44	Reclamation	Re-vegetation of the operations would be determined satisfactory when 70 percent coverage of targeted species is achieved.	Section VII, Item H (6), page 29; Section X, Item D (47), page 43
45	Reclamation	After operations cease and all materials have been removed, BNP would install sand fencing parallel to the barrier dune ridge to stop sand and reestablish the dune line.	Section VII, Item G, page 29; Section X, Item D (52), page 43
Number	**Resource Concern**	**Mitigation Measures**	**Reference**
46	Sea Turtles	Driving will be conducted above the Gulf beach “wet line” to prevent excessive erosion along the beach	Section X, Item D (14) page 40
47	Sea Turtles	If possible, BNP would avoid moving the rig via the Gulf beach during the months of April through September in order to avoid disturbing sea turtle	Section X, Item D (7), page 40

Number	Actions	Mitigation Measures under Alternative B, Proposed Action	Reference
		nests and nesting activity. However, should rig scheduling force BNP to move equipment down the beach during this period, a monitor would be utilized to avoid potential adverse impacts to turtle nesting.	
48	Sea Turtles and Birds	BNP would utilize shielded lights to prevent unnecessary glare and direct all lighting at the rig toward the rig work area itself.	Section X, Item D (14), page 40
49	Birds	All open-topped tanks and/or secondary containments will be covered with netting or other covering, to effectively eliminate the likelihood of accidental deaths to migratory birds.	Section X, Item D (23), page 41
50	Birds	If the well were placed in production, all produced water would be stored in a closed top fiberglass tank(s). The water would be transported to an off-site, state-approved disposal facility by vacuum truck to reduce likelihood of accidental death to migratory birds.	Section V, Item K (4), page 19; Section X, Item D (20), Page 41
51	Birds	All open-vent exhaust stacks on production vessels designed to heat the product using an open flame would be constructed in a manner that prevents birds and bats from entering or perching.	Section X, Item D (22), page 41

Conditions of Approval: The Regional Director has authority to attach conditions to plans of operations under the NPS' nonfederal Oil and Gas Regulations (36 CFR 9.37(b)(2)). The approval of the Plan of Operations would be conditioned upon BNP meeting the additional mitigations in Table 5.

Table 5. Conditions of Approval.

Number	Concern	Conditions of Approval
1	Park Infrastructure	"The Superintendent of Padre Island National Seashore, or his representative, shall have reasonable access to the operations as is necessary to properly monitor and insure compliance with the conditions of the plan of operations under the provisions of 36 CFR §9.37(f)"
2	Park Infrastructure	The approval of the Plan of Operations would be conditioned upon BNP tendering a performance bond to: (1) ensure timely and effective plugging of the well and reclamation of the operations area upon abandonment; and (2) guarantee rapid and effective response and cleanup of a spill. The regulations further state that the amount of the surety cannot exceed the sum of: (1) the cost of plugging the well and reclaiming the operations area; and (2) the liability amount estimated by the Superintendent required to effectively contain, cleanup, and minimize the damages resulting from the operation. The regulations limit the liability amount for the operation of a single well to $50,000. The regulations further limit the maximum overall bond for any entity to not exceed $200,000 for operations by a given operator within a unit of the National Park System.
3	Park Infrastructure	The well plugging and surface reclamation costs listed in Section 1 of the Reclamation Plan total more than $200,000. By regulation, the NPS has set the performance bond for the Lemon/Lemon Seed Unit wells at $200,000. BNP already has on file with the park a bond specific to the Dunn-Murdock Well No. 1 plan of operations. As a condition of approving the Plan of Operations, the NPS would require BNP to modify the

Number	Concern	Conditions of Approval
		language of the bond to include the Lemon/Lemon Seed Unit operations.
4	Park Infrastructure	Damage to paved surfaces due to trucks carrying construction and drilling equipment will be assessed. BNP will be charged for the cost of repair of these surfaces because these roads were not constructed for heavy industrial equipment and loads. Typical repairs of this type include road resurfacing, site preparation, pack coat, and seal and chip. Price would be determined based upon wear to the road.
5	Park Infrastructure	For all releases to the ground of contaminating or toxic substances, BNP would promptly report the following initial information to Padre Island National Seashore: time of spill discovery, type of product spilled, location of spill, estimated spill volume, cause of spill, area covered; estimated rate or release if spill is ongoing; direction of spill movement; description of contaminated area; proximity to surface waters, roads or trails; weather conditions; steps being taken to remedy the situation; and initial response equipment required. For releases in excess of 5 barrels in the aggregate, BNP would provide a written report to Padre Island National Seashore within 10 working days of the incident. In addition to the information reported in the initial notification, the written report would include steps that would be or have been taken to prevent recurrence of the incident
6	Park Infrastructure	Source of water and annular injection: The water well would be drilled into the Goliad formation, between 1,400 feet and 1,700 feet. Providing this well has sufficient volume, BNP would not have to purchase water from the park or haul water via water trucks along the Gulf beach. Assuming BNP drills a usable water source well for the Lemon/Lemon Seed Unit wells, communication between the water well and well No 1-1008S in the event of a high-pressure gas kick is possible and would be a concern. Below is a comparison of the kick tolerances for surface casing setting depths of 1,750 feet and 2,230 feet. This is based on a formation pressure of 5200 psi (equivalent mud weight of 11.0 ppg) at a true vertical depth of 9,300 feet.
7	Turtles	NPS awareness training provided to BNP employees and contractors that includes identification of tracks, notification protocol, and how to mark tracks or nest area if they are unable to stay on site until official crew arrives. FES, 5-11(9)
8	Turtles and Visitors	Trained escort will lead all large vehicles when traveling to or from the well site
9	Turtles and Visitors	Escorts will utilize an ATV as the primary vehicle preceding heavy equipment on the Gulf beach during peak Kemp's ridley nesting. FEIS, 5-11 (9).
10	Turtles and Visitors	All large trucks will drive 15 mph or less in the posted 25 mph speed zone and speed limits will be strictly enforced
11	Turtles and Visitors	A backhoe will be stationed on the Gulf beach to smooth out ruts as needed
12	Turtles and Visitors	No large vehicles will travel at night to minimize disturbance
13	Turtles /Birds	Larger vehicles will be limited to 20 round trips per day
14	Turtles /Birds	Large vehicles will be scheduled to facilitate caravanning
15	Turtles /Birds	Lighting on the drilling rig will be shielded and directed inward to reduce the distraction potential for turtle hatchlings. FEIS, 5-11 (10), Section X, Item D (14), page 40.
16	Turtles	Use of a required setback of 500 feet from the dunes and other light-sensitive areas;
17	Turtles	During peak Kemp's ridley nesting season, vehicle convoys will not leave before an NPS/USGS turtle patroller patrols the beach ahead of them
18	Birds	Driving will be conducted above the Gulf beach "wet line" to help prevent disturbance to resting birds and crushing of benthic invertebrates

Number	Concern	Conditions of Approval
19	Turtles/Birds	Large vehicles will be scheduled to facilitate caravanning
20	Birds	Native vegetation will be planted around the well site to minimize noise and provide habitat for birds
21	Visitors	Location of the wellpad is suitable for drilling to multiple targets and eliminates the need for additional wellpads, minimizing topographic impacts
22	Visitors	Increasing wellpad size by approximately 0.5 acres to allow the temporary storage of drilling byproducts and flexibility in scheduling larger disposal vehicles
23	Visitors	Drilling crew will utilize shuttle service provided by escort vehicle to limit traffic
24	Visitors	Lighting on the drilling rig will be directed inward to meet human safety requirements and reduce night sky impacts
25	Visitors	Use of a diesel electric drilling rig and hospital mufflers on compressors to reduce noise levels
26	Visitors	Fencing and signing the operations area to exclude and protect visitors
27	Visitors	Use of secondary containment to prevent leaks and spills of hydrocarbons or hazardous substances from being released to the environment
28	Visitors	Production facility equipment and wellhead would be painted a neutral, earth-tone color, such as Sherwin Williams Burlap, or a similar NPS approved color, to blend with the natural environment
29	Visitors	Planting native willow trees or shrubs around the production facility to provide visual screening

2.3. Alternatives Considered but Dismissed from Further Analysis

During the scoping process for this project, alternative locations and methods were considered for siting the proposed wellpad, access road, production facilities, and flowline in consultation with the USFWS, BNP, park staff, Regional Support Office, and Washington Support Office for technical guidance. For the reasons described below, these alternatives were not subjected to further analysis:

Northern Alternative

A surface location approximately 1,500 ft. north of the proposed Lemon/Lemon Seed location was considered. The access road to this location would be approximately 1,800 linear feet and as wide as 22 feet due to the steepness of the dune system and requirements for slope stabilization and re-vegetation. This road would impact 1,010 linear ft. more of dunes and grasslands than the presently proposed access road. This alternative location would allow only one gas formation to be targeted because of the drilling angle, and would ultimately require an additional wellpad location and associated access road to be constructed in another area to hit the presently proposed targets.

Based on the greater impacts to park wildlife habitat and dune system, the increased need for more access routes through the dunes, the increased economic costs from construction, wellpad development, access, and the likelihood of missing targeted multiple gas formations, and the decrease in impacts to Padre Island National Seashore resources of this action, this Northern alternative was dismissed.

Southern Alternative

Another surface location approximately 3,000 ft. south of the proposed Lemon/Lemon Seed location was considered. During the field visit to the site, it was felt that the impacts associated with this location would be similar to the other alternative locations, but would have a greater impact on the dune system than either the Northern alternative or the proposed Lemon/Lemon seed location. The dunes in this location were formed in two separate rows and extend a greater distance back from the shoreline. Reclamation and stabilization of this site would have been more difficult. The length of the access road associated with this alternative would be longer, with a width of at least 22 feet to allow for slope stabilization and restoration efforts in the dunes. The wellpad would be similar in size to the

Lemon/Lemon seed proposal, but with greater overall wildlife habitat removal and impacts. While visually assessing a tentative flowline route from the pad to one the existing pipelines, it was evident that wetland avoidance would be very difficult. Based on the visual assessment, additional impacts to dunes and vegetation, and the fact that another wellpad would have to be used to reach the second target, this site was dropped from consideration.

Gulf of Mexico Alternative

An offshore location in the Gulf of Mexico was also considered as a possible location to access the targeted gas reserves. A well location in the Gulf of Mexico within two miles of the park would increase the risk of a spill event, increase the potential for litter-related environmental impacts, negatively impact the viewshed, and increase the cost of drilling and operating the well. This location would also reduce options for drilling to multiple targets, as it would be against the fault angle, and therefore prohibit the drilling to multiple bottom-hole locations from a single offshore location. To reach multiple bottom-hole locations, a jack-up rig would need to be re-positioned for each location during the drilling phase. In the event that gas production occurred at each location, multiple production platforms would be constructed and thereby pose long-term visual impacts and increase the potential for gas byproducts, such as condensate to spill into the Gulf and affecting beach visitors and shoreline wildlife.

Lastly, the targeted bottom-hole locations occur within a 2-mile setback from the shoreline agreed to by the National Park Service and the Texas General Land Office. Oil or gas exploratory wells and production operations, targeting reserves within two miles of the shoreline, are to be drilled from outside of two miles between September 15 to March 15 (PAIS, 2000, pg. 4-56) to minimize visual impacts to visitors, and secondarily to protect sea turtles. Additionally, there is a three-mile setback from March 15 to September 15 during the height of the visitor season and secondarily during the sea turtle nesting season. Where possible, park policy is to place wells behind the dunes and drill directionally to reduce visual impacts to the greater majority of visitors. This alternative proposal does not comply with this policy.

Based on the increased risk of a spill event, long-term visual impacts to park visitors recreating on the Gulf beach, a greater potential for accidental spill events, the estimated increase in costs associated with the drilling of multiple offshore well locations to reach all targeted bottom-hole locations, and the non-compliance with park policy (PAIS, 2000) the Gulf of Mexico alternative was dismissed.

Alternative Flowline Location

An alternative flowline route approximately three miles south of the presently proposed location was examined. This route was proposed because it is an existing pipeline facility located at Yarborough Pass, which is operated by Duke Energy. The Duke Energy pipeline is not in operation and is in non-compliance because there are portions of the pipeline that are exposed aboveground thereby violating state regulations. The pipeline cannot be used to transport product within Padre Island National Seashore until Duke Energy brings the pipeline into compliance with its Plan of Operations. To do this, approximately 784,080 sq. ft. (18 ac.) of uplands and 10,890 sq. ft. (0.25 ac.) of wetlands would need to be disturbed to rebury the exposed portions of the pipeline. In addition, to tie it into the Lemon or Lemon Seed flowlines, another 164,000 sq. ft. (3.8 ac.) of uplands and 1,383 sq. ft. (.032 ac.) of wetlands would be impacted by the proposed flowline.

Based on the increased impact to park upland and wetland habitats, associated access and maintenance requirements, and the issue of non-compliance of Duke Energy's pipeline, this alternative was dismissed.

Alternative Well Access

An alternate access route for accessing the presently proposed Lemon/Lemon seed well location was suggested by BNP. This route involved the establishment of a new access road behind the dunes, originating at the end of pavement of Park Road 22 and extending 12.5 miles south to the proposed well

locations. This route would entail six and one-half (6.5) miles of new road from Park Road 22, connecting to an existing unpaved route at the Pan Am Road for approximately three (3) miles, then construct new road for the next two and one-half (2.5) miles to the proposed well site. The last part of the road construction would follow the proposed flowline route, and be placed adjacent to the line. Expected impacts to large acreages of uplands, backdune habitat, wetlands, bird habitat, cultural resources, and the potential to impact Piping plover foraging areas make this alternative unattractive. In addition, to meet the executive order outlining no net loss of wetlands, impacts to wetland habitats would require replacement mitigation, at the current NPS policy rate of 2:1 or as much as 5:1. There are no known freshwater wetland mitigation sites within the park, and NPS policies and the General Management Plan (1983) for Padre Island National Seashore does not support development in the backcountry, or use of natural open space for the creation of "man made" wetland areas. So, due to the potential loss of wetland habitat, costs to construct such a road, and the potential for misuse by unauthorized recreational vehicle use, this idea was rejected early in the process.

Alternative Seasonal Closure

A seasonal closure for the protection of sea turtle species and their habitat, and for protected shorebirds was also considered. This closure would occur between March 15 to September 30, affecting all oil and gas exploration and drilling activity, that requires heavy equipment and truck traffic down the beach. A closure of this type would require all oil and gas operations to be conducted outside of the sea turtle nesting and hatchling emergence season, allowing drilling to occur only during the months of October thru February. There are also concerns with closures related to hurricane season, the winter occurrence of the threatened Piping Plover and endangered Brown Pelican, and seasonally occurring above average high tides.

The nonfederal mineral owners hold a right of reasonable access across the federal surface to explore for and develop their mineral interest. The NPS, however, has the right under federal law to reasonably regulate access to protect park resources and values. While federal law is supreme to and supplants state law that is in conflict with it, Congress has recognized the exercise of oil and gas rights at Padre Island N.S. The NPS has neither found, nor has it been presented with data that would support a decision for a seasonal beach closure applied to oil and gas operators. The NPS will attach reasonable mitigation measures to an oil and gas operator's access, e.g. speed limits and monitors that are designed to provide protection against harm to park resources and values. A seasonal closure may also require that the drilling rig(s) to be demobilized and moved repeatedly up and down the beach, or to have more than one rig operating at a time. Impacts associated with the repeated mobilization of the drilling rig and associated equipment would increase impacts to visitors, other non-sea turtle species of concern, vegetation habitats, and increase the operating costs to the contractor. Such a closure would result in a concentration of impacts over a shorter amount of time, and may not allow for natural recovery of the beach and associated access routes between operations.

Some benefits may occur to shoreline species, e.g. Interior Least Tern, that utilize the beach to nest, forage, or loaf during a closure. The public would not be subjected to the type of traffic volume during high visitation periods, and the risk of crushing or impacting nesting sea turtles, their nests, or any hatchlings left on the beach would be somewhat reduced. There would, however, still be potential impacts from public use and recreation of the beach during this seasonal closure. Even though there are added benefits to sea turtles and summer visitors, the potential for greater impacts due to heavier concentration of oil and gas activities created by the seasonal window outweighed the potential benefits.

Based on the lack of data supporting a seasonal beach closure as applied to oil and gas operator access in particular, the greater concentration of impacts in the short-term, the increased risk to equipment and personnel, the health and safety issues related to hurricanes, the potential impact to Piping Plovers and other protected and non-protected species of shorebirds, and the expected increase in economic costs

associated with more frequent or repeated mobilization of the drilling rig and associated equipment, this alternative was dismissed

2.4. NPS Environmentally Preferred Alternative

Section 101 of NEPA states that "…it is the continuing responsibility of the Federal Government to…(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; (5) achieve a balance between population and resource use which would permit high standards of living and a wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources" [42 U.S.C. §4321 *et seq.* §101 (b)].

The environmentally preferred alternative for drilling and producing the Lemon/Lemon Seed Units is based on these national environmental policy goals. Under Alternative A, No Action, the wells would not be drilled.
Because there would be no new impacts, Alternative A would provide the greatest protection of area and park resources and values. Alternative A meets five of the six criteria (1 thru 4, and 6) and is the environmentally preferred alternative.

BNP's Proposal, Alternative B, would have greater effects on the environment because of the drilling and production operations. Alternative B meets four of the six criteria (1,2,4, and 5). Although mitigating measures would reduce effects to park resources and values, there would still be effects, and therefore this alternative would not meet the Park Service's environmental policy goals as well as the No Action Alternative.

2.5. NPS Preferred Alternative

The environmentally preferable alternative is Alternative A because it surpasses Alternative B in realizing the full range of national environmental policy goals as stated in §101 of NEPA. However, because the enabling legislation of Padre Island National Seashore respects the exercise of oil and gas rights, the environmentally preferred alternative was not selected as the NPS preferred alternative. The NPS preferred alternative is the Alternative B, Proposed Action. The NPS believes this alternative would fulfill its mandates and direction, giving due consideration to environmental, economic, technical, and other factors.

Table 6. Extent that Each Alternative Meets Objectives.

Objectives	Does Alternative A: No Action Meet Objective?	Does Alternative B: Proposed Action Meet Objective?
Provide BNP Petroleum Corporation, as a holder of nonfederal oil and gas mineral interests, reasonable access for exploration and development,	**No (-)** The wells would not be permitted to be drilled, precluding BNP Petroleum Corporation reasonable access to develop its nonfederal oil and gas mineral interests.	**Yes (+)** The wells would be permitted to be drilled and produced, with the application of mitigation measures to meet other objectives.
Avoid or minimize impacts on park resources and values, visitor use and experience, and	**Yes (++)** Without drilling the wells, there would be no impacts.	**Yes (+)** Mitigation measures would avoid and minimize impacts.

Objectives	Does Alternative A: No Action Meet Objective?	Does Alternative B: Proposed Action Meet Objective?
human health and safety,		
Prevent impairment of park resources and values.	**Yes (++)** Without drilling the wells, there would be no potential for park resources and values to be impaired.	**Yes (+)** Mitigation measures would result in no impairment of park resources and values.

Table 7. Comparative Summary of Alternatives.

Actions	Alternative A: No Action	Alternative B: Proposed Action
Access	Access road would not be constructed.	BNP related traffic would utilize Park Road 22 along with approximately 12.5 miles of Gulf Beach. BNP would construct a 790' x 20' access road through the foredunes to the wellpad.
Surface Location Wellpad	Wellpad would not be constructed.	BNP would construct a 159,103 square-foot drill site on uplands using conventional foundation construction techniques. Berms would be constructed around the perimeter and around the diesel tanks. All equipment, machinery and living quarters would be placed on the pad.
Production Facility	Production facility would not be constructed.	It the wells proved to be productive, BNP would place a production facility on the wellpad. Therefore, no additional impacts would occur to previously undisturbed habitats.
Pipeline	Pipeline would not be constructed.	BNP proposes to construct a 3,280 linear feet route through uplands to the existing Duke Energy pipeline (inactive) or 4,300 linear feet upland route, in which 55.3 linear feet crosses an emergent wetland. Both are located west of the drill site.
Reclamation Plan	No reclamation plan would be needed because the wells would not be drilled.	BNP would remove all foreign materials from the park. All surface disturbances would be re-contoured as near as possible to the original contour. The ground would be fertilized and mulched with native hay. The mulch would be disked into the ground. Hand tools or herbicides would control undesirable species. The restored area would be

Actions	Alternative A: No Action	Alternative B: Proposed Action
		monitored until 70% native vegetation cover was achieved. Sand fencing would be installed across the dune pass to aid foredune re-establishment.

Table 8. Comparative Summary of Impacts.

Impact Topic	Alternative A: No Action	Alternative B: Proposed Action
Nonfederal Oil and Gas Development	Lemon/Lemon Seed Unit wells would not be drilled or developed, resulting in no impact on domestic energy supplies, and a moderate to major adverse impact on BNP. If BNP decides not to drill additional wells in the vicinity of the park there could be a moderate to major, cumulative, adverse impact on BNP and a cumulative, moderate, adverse impact on domestic energy supplies.	Lemon/Lemon Seed Unit wells would be drilled, and if hydrocarbons are produced, could result in a negligible beneficial impact on domestic energy supplies. There would be a minor adverse impact on BNP due to costs and time invested in preparing a plan of operations, drilling and completing and/or plugging the wells. If additional wells are drilled and completed in the vicinity of the park, there could be a minor, beneficial cumulative impact on domestic energy supplies and a minor to major, beneficial cumulative impact on BNP and associated mineral owners
Air Quality	Lemon/Lemon Seed Unit wells would not be drilled; resulting in no new impacts on air quality. Existing park, commercial, and recreational vehicle use on the 12.5-mile segment of Gulf beach; visitor use on the beach; and continuing operation of two gas pipelines would result in localized, short to long-term, negligible to minor, adverse impacts on air quality within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park; routine park operations; park, commercial, and recreational vehicle uses, and visitor uses are expected to result in localized, negligible to minor, adverse impacts on air quality throughout the park, and to remain within state and federal standards. No impairment to air quality would result from implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled and could be placed in production. Construction of the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term, negligible to minor, adverse impacts on air quality within the analysis area. Cumulative impacts would be similar to those described under No Action, with localized, negligible to minor, adverse impacts on air quality throughout the park, and would remain within state and federal standards. No impairment to air quality would result from implementation of this alternative.
Geology and Soils	Lemon/Lemon Seed Unit wells would not be drilled; however, existing uses, including park, commercial, and recreational vehicle access along the Gulf beach, and continuing operation of the two pipelines, would result in localized, negligible to minor, adverse impacts on geology and soils within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, negligible to minor adverse impacts, localized near	Lemon/Lemon Seed Unit wells would be drilled and could possibly produced hydrocarbons, resulting in the short-term disturbance to geology and soils on up to 9 acres, and the long-term occupancy of 2.16 acres. Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term negligible to minor, adverse impacts on geology and soils. Cumulative impacts would be similar to those described under

Impact Topic	Alternative A: No Action	Alternative B: Proposed Action
	developments throughout the park; however, in the event of spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts. No impairment to geology and soils would result from implementation of this alternative.	Alternative A, No Action, with short- to long-term, negligible to moderate, adverse impacts on geology and soils throughout the park. No impairment
Water Resources and Floodplains	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on water resources. Existing park, commercial, and recreational vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and the continuing operation of two gas pipelines would result in localized, long-term, negligible to minor, adverse impacts on water resources and floodplains within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, negligible to minor, adverse impacts localized near developments throughout the park; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate, adverse impacts. No impairment to water resources and floodplains would result from implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled, resulting in the short-term occupancy of 100-year floodplains on up to 9 acres, and if produced, result in the long-term occupancy of 2.16 acres. Constructing the dune-cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term negligible to minor, adverse impacts on water resources and floodplains. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, routine park operations, and visitor uses are expected to result in short to long-term, negligible to minor adverse impacts, localized near developments throughout the park; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts. No impairment to water resources and floodplains would result from implementation of this alternative.
Wetlands	Lemon/Lemon Seed Unit wells would not be drilled; however, existing vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines, would result in localized, long-term, negligible to minor, direct and indirect, adverse impacts on marine and emergent wetlands within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, minor, direct and indirect, adverse impacts, localized near developments throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's wetlands, primarily along the park's shorelines. No impairment to wetlands would result from implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be short-term, direct impacts on 0.032 acres of emergent wetlands associated with the placement of the flowline, until the surface of the flowline corridor is reclaimed. Vehicle access above the "wet-line" along the 12.5-mile segment of Gulf beach, and construction and maintenance of the flowline within 0.032 acre of emergent wetlands, in addition to existing activities within the analysis area, would result in localized, short to long-term, negligible to minor, direct and indirect adverse impacts on wetlands. Cumulative impacts would be similar to those described under Alternative A, No Action, with short to long-term, minor, direct and indirect, adverse impacts, localized near developments throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's wetlands, primarily

Impact Topic	Alternative A: No Action	Alternative B: Proposed Action
		along the park's shorelines. No impairment to wetlands would result from implementation of this alternative.
Vegetation	Lemon/Lemon Seed Unit wells would not be drilled; however, existing uses, including the continuing operation of two gas pipelines, would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on vegetation within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, routine park operations, and visitor uses are expected to result in short to long-term, minor, direct and indirect, adverse impacts, localized near developments throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's vegetation, primarily along the park's shorelines. No impairment to vegetation would result from implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be short-term loss of vegetative cover on up to 9 acres, and the long-term occupancy of 2.16 acres. Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on vegetation. Cumulative impacts would be similar to those described under Alternative A, No Action, with short to long-term, minor, direct and indirect, adverse impacts on vegetation throughout the park. No impairment to vegetation would result from implementation of this alternative.
Natural Soundscapes	Lemon/Lemon Seed Unit wells would not be drilled; however, existing vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines would result in localized, short-term, negligible to minor, adverse impacts on natural soundscapes within the analysis area. Cumulative impacts from existing and future oil and gas operations in the park, routine park operations, and visitor uses are expected to result in short to long-term, negligible to moderate, adverse impacts on natural soundscapes, localized near sources throughout the park. No impairment to natural soundscapes would result from implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled and may be produced. Construction of the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in short to long-term, negligible to moderate, adverse impacts on natural soundscapes, localized around sources. Cumulative impacts would be similar to those described under No Action, with localized, short to long-term, negligible to moderate, adverse impacts on natural soundscapes throughout the park. No impairment to natural soundscapes would result from implementation of this alternative.
Wildlife	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on wildlife; however, existing vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines would result in short to long-term, negligible to minor, direct and indirect, adverse impacts on wildlife, localized near developments and activities within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, negligible to minor, adverse impacts, localized near developments throughout the	Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be short-term loss of wildlife habitat on up to 9 acres, and the long-term occupancy of 2.16 acres. Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term negligible to minor, adverse impacts on wildlife. Cumulative impacts would be similar to those described under Alternative A, No Action, with short to long-term, negligible to moderate, adverse impacts on wildlife throughout the park. No impairment

Impact Topic	Alternative A: No Action	Alternative B: Proposed Action
	park; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts. No impairment to wildlife would result from implementation of this alternative.	to wildlife would result from implementation of this alternative.
State and Federally Protected Species	Lemon/Lemon Seed Unit wells would not be drilled, with no impacts on suitable habitat or species. Existing impacts on suitable habitat and species range would range from no impact, to localized, short to long-term, negligible to minor, adverse impacts. Cumulative impacts from existing and future oil and gas operations in the park, routine park operations, and visitor uses are expected to result in localized, short to long-term, negligible to moderate adverse impacts on State and Federally Protected Species. However, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts, primarily along the parks shoreline. No impairment to species or suitable habitat would result from implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled, and may be placed in production. Existing impacts on suitable habitat and species are the same as under Alternative A, No Action. Impacts on suitable habitat and species from the construction and maintenance of the access road, well /production pad (4.17 acres), and pipeline (4.88 acres), and drilling and production of the well would result in localized, short to long-term, negligible to minor, adverse impacts, and negligible beneficial impacts on T&E species. Cumulative impacts would be similar to those described under No Action, with localized to widespread, short to long-term, negligible to moderate adverse impacts throughout the park. No impairment to species or suitable habitat would result from implementation of this alternative
Visitor Use and Experience	Lemon/Lemon Seed Unit wells would not be drilled; however, existing vehicle use on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, adverse impacts on visitor use and experience within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, minor to moderate, adverse impacts, but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate adverse impacts on visitor use and experience, primarily along park shorelines. No impairment to visitor use and experience would result from implementation of this alternative.	Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced, resulting in the short-term loss of natural scenery on up to 9 acres, and long-term occupancy by oil and gas developments on 2.16 acres, with localized, short to long-term, negligible to minor, adverse impacts, on visitor use and experience in the analysis area. Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term negligible to minor, adverse impacts on visitor use and experience. Cumulative impacts on visitor use and experience throughout the park would be similar to those described under Alternative A, No Action, with impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses, resulting in short to long-term, minor to moderate, adverse impacts; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate

Impact Topic	Alternative A: No Action	Alternative B: Proposed Action
		adverse impacts on visitor use and experience, primarily along park shorelines. No impairment to visitor use and experience would result from implementation of this alternative.

3.0. AFFECTED ENVIRONMENT and ENVIRONMENTAL CONSEQUENCES

Methodology

This section describes direct, indirect, and cumulative impacts under the two alternatives. Impacts are described in terms of context, duration, and intensity. The context or extent of the impact may be **localized** (affecting the project area or a single company) or **widespread** affecting other areas of the park and/or the project area, or an industry). The duration of impacts could be **short-term**, ranging from days to three years in duration, or **long-term**, extending up to 20 years or longer. Generally, short-term impacts would apply to construction activities and long-term impacts would apply to roads, production operations, and pipelines. The intensity and type of impact is described as negligible, minor, moderate, or major, and as beneficial or adverse. Where the intensity of an impact can be described quantitatively, the numerical data are presented. However, most impact analyses are qualitative.

Cumulative Impacts: The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). The following descriptions of park development and operations, nonfederal oil and gas development, and adjacent land uses provide the basis for analyzing cumulative impacts in this chapter:

The following descriptions of park development and operations, and adjacent land uses provide the basis for analyzing cumulative impacts in this EA. These descriptions should be used in conjunction with the description of the affected environment for nonfederal oil and gas development that follows in the next section:

Park Development and Operations: Padre Island National Seashore was established to save and preserve a portion of the diminishing seashore of the United States that remains undeveloped, for the purposes of public recreation, benefit, and inspiration. Any developments are vulnerable to the harsh corrosive salt-air atmosphere and require constant maintenance. Park developments are confined to the northernmost 10 miles of the park and consist of the minimum necessary to support park management and approximately 750,00 visitors annually. The Malaquite visitor center and concession facility was built in 1988 to replace the older pavilion structure damaged by Hurricane Allen. In 1999, Hurricane Bret struck the park from the 32.5 to 56.8 mile markers, and created 21 washover channels. In addition to the Malaquite visitor center/concession facility, there is a 1,150-vehicle parking lot, a park headquarters/ranger station/turtle incubation facility, 2 park housing units, a 40-site RV Campground, wastewater treatment facility, Bird Island Basin and Yarborough Pass boat docks, an unpaved cross-island Yarborough Pass road, and a ¾-mile unpaved Grasslands Nature Trail. The paved, two-lane Park Road 22 provides access into the park, westward to Bird Island Basin, or south to Malaquite Beach at which point the Gulf beach becomes the primary transportation corridor south. The beach is hard and accessible by both two and four-wheel drive vehicles for 5-miles at which point the beach corridor is recommended accessible only by four-wheel-drive vehicles. Access to the park is also available via boat in the Laguna Madre or Gulf of Mexico. In total, existing park developments occupy 391 acres or 0.3% of

the park. There are no past developments or activities that continue to impact the park's resources or values; and no new developments are planned in the future.

Park activities that could contribute to impacts on park resources and values include prescribed fires, routine maintenance of the park roads, park and visitor vehicle use, and public recreational activities such as motor boating, and burning of campfires.

Adjacent Land Uses. Drilling and production of state-owned oil and gas is expected to continue from state tracts adjacent to the park boundaries, either on the east in the Gulf of Mexico, or on the west in the Laguna Madre. Exploration and development of federally-owned oil and gas in the Gulf of Mexico's outer continental shelf will also continue. In addition, tankers transporting products through the Gulf of Mexico could potentially impact the park should there be a spill incident. These activities have the potential to impact all park resources and values.

Impairment: a major, adverse impact to a resource or value whose conservation is: 1) necessary to fulfill a specific purpose identified in the establishing legislation of Padre Island National Seashore; 2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or 3) identified as a goal in the park's general management plan or other relevant NPS planning documents.

The impact analyses are organized by impact topic. Under each impact topic, the affected environment is described, impacts under each alternative is given, a cumulative impact analysis is provided (analysis area is parkwide), and a conclusion is stated. The conclusion section summarizes all major findings, including whether or not an impairment of resources or values is likely or would occur. Impairment analyses are only performed for park resources and values.

3.1. Impacts on Nonfederal Oil and Gas Development

Methodology

To analyze the impacts on nonfederal oil and gas development, the park reviewed current and historic drilling operations that have been conducted within the park since the mid 1900's. Information from the parks enabling legislation, current state and federal laws and regulations, and the parks approved Oil and Gas Management Plan were also utilized.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible:	the impact is barely measurable, and/or would not affect domestic energy supplies or BNP.
Minor:	the impact is slight but measurable, and/or would affect domestic energy supplies or BNP.
Moderate:	the impact is readily apparent, and/or would affect domestic energy supplies or BNP.
Major:	the impact is severely adverse or exceptionally beneficial, and/or would affect domestic energy supplies or BNP.

Affected Environment

Oil and gas exploration and production have been actively pursued on Padre Island since 1951. A total of 73 operations have occurred within the current boundaries of the park. During 1982-1992, two-dimensional seismic surveys were conducted over many areas of the park. Currently, there are 12 gas operations, including 6 wells, 1 saltwater well, and 6 pipelines occupying 349 acres or 0.27 percent of the

park. All are under approved plans of operations. Four operations, including 1 abandoned production facility have ongoing clean-up and remediation activities associated with releases of oil and gas and other contaminating or hazardous substances (South Sprint Facility, Vector site, American Exploration/Louis Dreyfus abandoned production facility, and the former Chevron USA Onshore Production Facility). Until cleanup is successfully completed, impacts on park resources and values persist.

Two existing gas pipelines are located within the analysis area of the proposed project. AEP operates and maintains a 12-inch pipeline 3,300 feet west of the proposed wellsites. Duke Energy owns a currently inactive 10-inch pipeline located 2,400 feet west of the proposed wellsites. BNP proposes to connect a flowline into one of these pipelines should the wells be placed in production. Also included in the analysis area of the proposed Lemon/Lemon Seed Unit wells is a 12.5-mile segment of Gulf beach that BNP would use to access its wells. This segment of Gulf beach is currently used by 12 nonfederal oil and gas operators to access existing operations located throughout the park, by park staff to conduct routine park operations, and by an estimated 95,000 (18% of annual visitation) park visitors that venture further than the Little Shell area (6 to 9-miles).

In 1999, the NPS prepared a reasonably foreseeable development (RFD) scenario for inclusion in the park's Draft Oil and Gas Management Plan/Environmental Impact Statement. The RFD projects that three-dimensional seismic surveys could be conducted over the entire park, and up to 18 wells could be drilled and produced over the next 30 years to develop the 80 BCF of natural gas estimated by the U.S. Geological Survey that remains beneath the park. The NPS projects that 3-D seismic surveys would directly impact up to 748 acres; and the 18 wells and associated construction of roads, well and production pads, and flowlines would directly impact up to 250 acres, for a total direct surface use of up to 998 acres or 0.77% of the park. It is expected that 3-D seismic surveys would result in short-term impacts lasting no more than 3 years until reclamation is satisfactorily achieved. It is reasonable to assume that, as some wells are being drilled and produced that others would be plugged and abandoned. As of 2001, 3-D seismic surveys have been completed over the northern three-quarters of the park. There are negligible to minor impacts on park resources and values from those seismic surveys. In June 2002, BNP drilled the Dunn-Murdock #1 well in the vicinity of the Yarborough Pass boat dock. This constituted the first of the possible 18 wells that the NPS's RFD scenario projected could be drilled over the next 30 years. The Dunn-Murdock #1 well directly disturbed 2.01 acres within the park. Should the well be placed in production, BNP would reduce the pad size by 0.92 acres so that the long-term production phase of operations would utilize 1.09 acres.

Impacts of Alternative A, No Action, on Nonfederal Oil and Gas Development

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no impact on domestic energy supplies. There could be moderate to major adverse impacts on BNP due to the cost to collect data, and prepare a plan of operations, and lost revenues since BNP would not develop their private mineral interests at this location.

Cumulative Impacts

Under Alternative A, No Action, if BNP decides to not drill additional oil and gas wells in the vicinity of the park, there could be a moderate to major, cumulative, adverse impact on BNP, and a cumulative, moderate, adverse impact on domestic energy supplies from potential production of oil and gas.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled or developed, resulting in no impact on domestic energy supplies, and a moderate to major adverse impact on BNP. If BNP decides to not drill additional wells in the vicinity of the park there could be a moderate to major, cumulative, adverse impact on BNP and a cumulative, moderate, adverse impact on domestic energy supplies.

Impacts of Alternative B, Proposed Action, on Nonfederal Oil and Gas Development

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, and if hydrocarbons are discovered and produced, could result in a negligible beneficial impact on domestic energy supplies. If a commercial field is discovered, the financial impacts on BNP and the associated mineral owners could range from minor to moderate beneficial impacts, depending on the quality of the discovery. Costs and time BNP has invested in preparing a plan of operations, drilling and completing and/or plugging the wells would result in a minor adverse impact on BNP.

Cumulative Impacts

Under Alternative B, Proposed Action, if the Lemon/Lemon Seed Unit wells were not produced, the cumulative impact on nonfederal oil and gas development would be the same as under the no-action alternative. Should additional exploration and development wells be drilled and completed, production of petroleum resources under the park would increase, and may result in a minor, beneficial, cumulative impact on domestic energy supplies and a minor to major, beneficial, cumulative impact on BNP and associated mineral owners.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, and if hydrocarbons are produced, could result in a negligible beneficial impact on domestic energy supplies. There would be a minor adverse impact on BNP due to costs and time invested in preparing a plan of operations, drilling and completing and/or plugging the wells. If additional wells are drilled and completed in the vicinity of the park, there could be a minor, beneficial cumulative impact on domestic energy supplies and a minor to major, beneficial cumulative impact on BNP and associated mineral owners.

3.2. Impacts on Air Quality

Methodology

To analyze the impacts on air quality, the park reviewed current state and federal laws regarding air quality and the parks approved Oil and Gas Management Plan.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible:	the impact is barely detectable and would not affect the parks designation as a Class II air shed.
Minor:	the impact is slight but detectable and would not affect the parks designation as a Class II air shed.
Moderate:	the impact is readily apparent and would not affect the parks designation as a Class II air shed.
Major:	the impact is severely adverse and/or would affect the parks designation as a Class II air shed.

Affected Environment

According to the TNRCC and the Final Oil and Gas Management Plan/Environmental Impact Statement (PAIS 2000), Kenedy County continues to be an attainment area for regulated pollutants. Prevailing southeast winds from March through September and north-northeasterly winds from October through February are likely to dissipate any pollutants in the park (PAIS 2000). Padre Island National Seashore is designated as a Class II air shed by the State of Texas, as authorized by the Prevention of Significant Deterioration provisions of the Clean Air

Act. The park's air quality is protected by allowing limited increases over baseline concentrations of sulfur dioxide, nitrogen oxides, and particulate matter (PAIS 2000).

Impacts of Alternative A, No Action, on Air Quality

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on air quality. However, impacts on air quality in the analysis area would continue as the result of vehicle use along the 12.5 mile segment of Gulf beach by park staff, visitors, and 12 nonfederal oil and gas operators; visitor campfires along this segment of Gulf beach; and the continuing operation of 2 gas pipelines. The possibility exists for leaks or spills of hydrocarbon products along the two pipelines. Spilled hydrocarbon products could volatize and enter the atmosphere. In the vicinity of a leak, concentrations of gas and other constituents could provide a source for explosion or fire. These impacts could be localized, with minor to major, short-term adverse impacts on air quality; however, with the mitigation measures and prompt response in the event of a spill, the intensity of impacts are reduced. Existing uses, including park, commercial, and recreational vehicle access along the Gulf beach, visitor use on the beach, and continuing operation of the two pipelines, would result in localized, long-term, negligible to minor, adverse impacts on air quality within the analysis area.

Cumulative Impacts

Under Alternative A, cumulative impacts on air quality throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park; and from new drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario. As some operations are developed, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Other park activities that could contribute to air quality impacts include prescribed fires; routine maintenance of park roads; park, commercial, and recreational vehicle use; and public recreational activities such as motor boating and burning of camp fires. Adjacent land uses that could contribute to impacts on the park's air quality include state- and federally-leased oil and gas operations in the Laguna Madre or Gulf of Mexico. As a result of these activities, cumulative impacts on air quality in the park is expected to be localized around point sources, short-term because emissions would be readily dissipated by prevailing winds, and range from negligible to minor adverse impacts. Air quality is expected to stay within state and federal standards.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled; resulting in no new impacts on air quality. Existing park, commercial, and recreational vehicle use on the 12.5-mile segment of Gulf beach; visitor use on the beach; and continuing operation of two gas pipelines would result in localized, short to long-term, negligible to minor, adverse impacts on air quality within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park; routine park operations; park, commercial, and recreational vehicle uses, and visitor uses are expected to result in localized, negligible to minor, adverse impacts on air quality throughout the park, and to remain within state and federal standards. No impairment to air quality would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Air Quality

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be completed to produce hydrocarbons.

Existing impacts on air quality within the analysis area would be similar to Alternative A, No Action, with localized, short to long-term, negligible to minor, adverse impacts associated with vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines.

Construction of the access road, well/production pad and flowline would result in localized and short-term increases in particulate matter during ground-disturbing activities such as importing and compacting caliche base materials, and use of vehicles and other machinery. Emissions of particulate matter, nitrogen oxides, carbon monoxide, carbon dioxide, and sulfur dioxide would be greatest during the short-term drilling and workover operations due to increased use of vehicles and large gasoline and diesel engines used to power the drill rig, pumps, and auxiliary equipment, resulting in short-term, negligible to minor adverse impacts on air quality, localized near the wellsite. Prevailing winds are expected to dissipate emissions quickly out of the area. If the wells were not productive, impacts on air quality would return to levels described under the No Action Alternative. However, if the wells were placed in production, emissions would continue but at reduced levels, resulting in localized, long-term, negligible, adverse impacts on air quality.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts would be similar to those described under No Action, with impacts localized point sources resulting in negligible to minor, adverse impacts on air quality throughout the park, and within state and federal standards.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and could be placed in production. Construction of the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term, negligible to minor, adverse impacts on air quality within the analysis area. Cumulative impacts would be similar to those described under No Action, with localized, negligible to minor, adverse impacts on air quality throughout the park, and would remain within state and federal standards. No impairment to air quality would result from implementation of this alternative.

3.3. Impacts on Geology and Soils

Methodology

To analyze the impacts on geology and soils, all available information on geological resources in the park was compiled including: research, previous plans of operations, and the parks approved Oil and Gas Management Plan.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible: an action that could result in a change to a natural physical resource, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: an action that could result in a change to a natural physical resource, but the change would be small and of little consequence.

Moderate: an action that could result in a change to a natural physical resource; the change would be measurable and of consequence.

Major: an action that would result in a noticeable change to a natural physical resource; the change would be measurable and result in a severely adverse or major beneficial impact.

Affected Environment

Padre Island consists of Pleistocene and Holocene sands, silts, clays, and shell fragments, which were transported by wind and water (PAIS FEIS, 2001). According to the U.S.

Department of Agriculture (1965), soil pH generally ranges from 5.5 to 8.0, with higher pH occurrences nearer the Gulf side of the island. Soils are comprised of the Galveston and Mustang series on the majority of the barrier island. Soil types in the project area consist of Padre series on sand hummocks and Mustang series on lower poorly drained swales. The Padre series is characterized as being well-drained, moderately deep sandy soil with depth to water at around 80 inches. Mustang series is characterized as being poorly drained shallow soils with depth to water at around 30 inches. A soil survey is being conducted park wide by the Natural Resources Conservation Service (NRCS) and is expected to be completed by 2003.

To establish baseline conditions of hydrocarbon and organic levels, BNP would sample soils immediately prior to the start of construction. Soils would be collected and tested according to the sampling protocol prescribed by the NPS (see Appendix F in Oil and Gas Management Plan/Final Environmental Impact Statement, PAIS 2000).

Impacts of Alternative A, No Action, on Geology and Soils

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on geology and soils. However, impacts on geology and soils in the analysis area would continue as the result of vehicle use along the 12.5-mile segment of Gulf beach, and the continuing operation of 2 gas pipelines.

Park staff, 12 oil and gas operators, and an estimated 95,000 (18% of annual visitation) park visitors use the 12.5-mile segment of Gulf beach for vehicular access. Vehicles on the Gulf beach would include 2 and 4-wheel drive cars and trucks, recreational vehicles, and on occasion larger vehicles associated with routine maintenance activities at the oil and gas sites located throughout the park. Four-wheel drive vehicles are recommended for travel below the 5-mile marker. Vehicles would compact and rut the beach sand. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants. The intensity of impacts would be variable, depending on number of vehicles using the beach on a given day. Impacts would be highest during the visitor use period from May through September, peaking in August; and would be concentrated in the first 5 miles of Gulf beach where most visitor use occurs. An estimated 527,800 visitors annually use the Gulf beach. Approximately 95,000 visitors (18% of those using the Gulf beach) travel between the 6 to 12.5-mile marker, with some going below this point. Vehicle traffic associated with oil and gas operations normally uses 4-wheel drive trucks, however, a large vehicle like a pumper-truck, would travel the beach corridor approximately every 10 days or so.

Existing operation of the two gas pipelines located to the west of the proposed wellsites would continue to impact geology and soils within the analysis area. Routine maintenance along the pipeline corridors would include accessing the pipeline corridor by truck or ATV to inspect surface equipment, and on an annual basis to excavate small sections of the lines to inspect the integrity of the pipelines. On occasion, a backhoe/front-loader would be used to excavate and replace segments of pipe. There is a potential for the pipelines to leak or rupture, releasing hydrocarbon products and contaminating soil. Impacts from spills could be localized, with minor to major, short-term adverse impacts on geology and soils; however, with the mitigation measures and prompt response in the event of a spill, the intensity of impacts would be reduced.

Existing uses, including park, commercial, and recreational vehicle access along the Gulf beach, and continuing operation of the two pipelines, would result in localized, long-term, negligible to minor, adverse impacts on geology and soils within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on geology and soils throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, future drilling and production of up to 17 wells projected in the park's

reasonably foreseeable development scenario on up to 248 acres, and spills from oil and gas activities located adjacent to the park, including tanker traffic in the Gulf of Mexico. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Leaks and spills from oil and gas operations could result in localized, minor to major, impacts on geology and soils. Spills from oil and gas operations and tankers in the Laguna Madre or Gulf of Mexico, could be transported by water into the park and cause widespread impacts that would require long-term clean-up and remediation. Park, commercial, and recreational vehicle use along the beach and off road vehicle use within the park would continue to compact and rut soils. Dredging and maintenance of the Intracoastal Waterway and other channels near the park could increase sedimentation within the Laguna Madre in the park. Cumulative impacts on geology and soils throughout the park are expected to be localized near developments, with short to long-term, negligible to minor, adverse impacts; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate adverse impacts on park geology and soils, primarily along park shorelines.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled; however, existing uses, including park, commercial, and recreational vehicle access along the Gulf beach, and continuing operation of the two pipelines, would result in localized, negligible to minor, adverse impacts on geology and soils within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, negligible to minor adverse impacts, localized near developments throughout the park; however, in the event of spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts. No impairment to geology and soils would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Geology and Soils

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and produced, resulting in the short-term disturbance to geology and soils on up to 9 acres, and if completed to produce hydrocarbons, the long-term occupancy of 2.16 acres.

Existing impacts on geology and soils within the analysis area would be similar to Alternative A, No Action, with localized, long-term, negligible to minor, adverse impacts associated with vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines.

Construction of the cut through the foredunes, access road, well/production pad, and flowline for the proposed Lemon/Lemon Seed Unit wells would directly impact up to 9 acres, resulting in the long-term loss of soil productivity and localized, short- to long-term, negligible to minor, adverse impacts on geology and soils in the analysis area.

The construction of the access road and well/production pad would directly impact 4.17 acres of undisturbed soils. The area would be leveled and caliche brought in to build the road and pad. Mitigation measures to protect soils during the drilling and production phase of operations would include constructing a sloped 8' x 8' corrugated steel well cellar, and lining the pad underneath the caliche with a 20-millimeter thick polyethylene liner that would extend over a 3-high berm surrounding the perimeter of the pad. These measures are intended to contain any spilled substances and prevent the downward percolation into native soil underlying the caliche pad. If the wells do not go into production, the entire 4.17 acres would be reclaimed, resulting in localized, short-term, minor adverse impacts on geology and soils until the site is satisfactorily reclaimed.

However, if the wells are placed in production, the well pad would be reduced by 2.1 acres and a flowline installed to connect with one of the existing pipelines located west of the proposed wells. The imported

caliche would be removed, the site recontoured to natural conditions, and native vegetation re-established to meet 70% cover. The continued use of the site for production operations would result in localized, long-term, minor adverse impacts on geology and soils.

Flowline construction would disturb an additional 4.88 acres of hummocky uplands, of which 0.032 acres are hydric soils associated with emergent wetlands. A temporary displacement of soils would occur until the flowline is being buried. Once the flowline is buried, soils would be replaced and the corridor would be revegetated. Adverse impacts on geology and soils from flowline placement would be localized, minor, and short-term during construction and revegetation activities.

The potential for leaks and spills exists during all phases of oil and gas operations, resulting in impacts that could be localized, with minor to major, short-term adverse impacts on geology and soils; however, with the mitigation measures included with this alternative, the intensity of impacts would be reduced.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on geology and soils throughout the park would be similar to those described under No Action, with impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, dredging and maintenance of the Intracoastal Waterway and other channels in the Laguna Madre near the park, resulting in short to long-term, negligible to minor adverse impacts localized near developments. In the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and could possibly produced hydrocarbons, resulting in the short-term disturbance to geology and soils on up to 9 acres, and the long-term occupancy of 2.16 acres. Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term negligible to minor, adverse impacts on geology and soils. Cumulative impacts would be similar to those described under Alternative A, No Action, with short- to long-term, negligible to moderate, adverse impacts on geology and soils throughout the park. No impairment to geology and soils would result from implementation of this alternative.

3.4. Impacts on Water Resources and Floodplains

Methodology

To analyze the impacts on water resources and floodplains, all available information on water resources and floodplains in the park was compiled including: personal observations, consultation with other agencies, the parks approved Oil and Gas Management Plan, other park documents, and landcover classification data.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible: an action that could result in a change to a natural physical resource, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: an action that could result in a change to a natural physical resource, but the change would be small and of little consequence.

Moderate: an action that could result in a change to a natural physical resource; the change would be measurable and of consequence.

Major: an action that would result in a noticeable change to a natural physical resource; the change would be measurable and result in a severely adverse or major beneficial impact.

Affected Environment

Padre Island National Seashore (NS) is located on a largely undeveloped barrier island in southern Texas, on the Gulf of Mexico. The barrier island is a dynamic system subject to many geologic forces and climatic events. The barrier island was formed, and is continually being reshaped, by the actions of wind, gulf currents, and waves. The seashore's landscape changes from broad, white, fine-sand beaches on the Gulf side, to ridges of fore-island sand dunes, to grassy interior upland flats dotted with smaller dunes, ephemeral ponds, and freshwater wetlands. The Laguna Madre and the back-island dunes and wind tidal flats that merge with the waters of the Laguna Madre define the western portion of the Seashore. Two natural and 20 man-made spoil islands in the Laguna also lie within the National Seashore.

The foredunes of the park provide protection from hurricanes and tropical storms for the island's backcountry and the Texas mainland. The dunes are fragile and, once impacted, can easily be destroyed through erosion and wind action. Dunes are created when vegetation stabilizes blowing sands that are moved across the beach. Small coppice dunes form first and become primary dunes as vegetation stabilizes more sand. This results in a line of dunes forming parallel to the beach that varies in height from less than 6 feet to approximately 50 feet above sea level. This primary dune line extends the entire length of Padre Island National Seashore, broken only in a few places where hurricane washover channels have occurred.

The proposed project is located on foredunes and hummocky uplands. No wetlands are present in the wellpad vicinity. Drainage from rainfall events tends to accumulate in lower-lying areas before seeping into the ground water, draining to the Laguna Madre tidal flats, or evaporating. Ground water at the site is approximately 2 to 5 feet deep, depending upon the season.

According to the Final Oil and Gas Management Plan/Environmental Impact Statement (PAIS 2000), and Federal Emergency Management Agency floodplain maps, most of the park and all of the project area lies within the 100-year floodplain. The exception is higher dune areas. The hurricane season begins June 1 and continues through November 30.

Impacts of Alternative A, No Action, on Water Resources and Floodplains

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on water resources and floodplains. However, impacts on water resources and floodplains in the analysis area would continue as a result of park, commercial, and recreational vehicle use along the 12.5-mile segment of Gulf beach, visitor uses on the beach, and the continuing operation of 2 gas pipelines.

Park staff, 12 oil and gas operators, and an estimated 95,000 (18% of annual visitation) park visitors use the 12.5-mile segment of Gulf beach for vehicular access. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. These substances could then be introduced into the Gulf by surface run-off or extremely high tides, resulting in localized, long-term, negligible, adverse impacts on water quality of the Gulf.

Visitor uses on the beach, including camping, fishing, swimming, wading, picnicking, nature viewing, and beachcombing. The visitor use period extends from May through September, peaking in August; and would be concentrated in the first 5 miles of Gulf beach where most visitor use occurs. Visitor uses would result in localized and short-term, negligible, adverse impacts on water quality of the Gulf.

Existing operation of the two pipelines located to the west of the proposed wellsites would continue to impact water resources and floodplains within the analysis area. Because the entire park is located within the 100-year floodplain, with the exception of the foredunes, there was no practicable alternative to siting the pipelines within the 100-year floodplain. Routine maintenance along the pipeline corridors would include accessing the pipeline corridor by truck or ATV to inspect surface equipment, and on an annual basis excavating small sections of the lines to inspect the integrity of the pipelines. On occasion, a backhoe/front-loader would be used to excavate and replace segments of pipe. These activities could cause sedimentation during times when the work area is inundated; however, it is anticipated that work of this nature would be scheduled during dry periods (winter months). There is a potential for the pipelines to leak or rupture, releasing hydrocarbon products and contaminating surface or groundwater. If leaks or spills occur during flood events, contaminants could be transported via surface waters great distances, thereby increasing flood hazards and degrading floodplain values. Impacts from spills could be localized to widespread, with minor to major, adverse impacts on water resources and floodplains. However, with mitigation measures and prompt response in the event of a spill, the intensity of impacts would be reduced.

Existing uses, including park, commercial, and recreational vehicle access along the Gulf beach, visitor uses on the beach, and continuing operation of the two gas pipelines, would result in localized, long-term, negligible to minor, adverse impacts on water resources and floodplains within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on water resources and floodplains throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres, and spills from oil and gas activities located adjacent to the park, including tanker traffic in the Gulf of Mexico. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Dredging and maintenance of the Intracoastal Waterway and other channels in the Laguna Madre near the park could increase turbidity to Laguna Madre waters inside the park. Other activities that could impact water resources and floodplains parkwide include prescribed fires; routine maintenance of park roads; park, commercial, and recreational vehicle use; and recreational activities.

Existing and future development of oil and gas access roads and pads within the park could result in altering surface water flow and locally increasing soil erosion. Leaks and spills from oil and gas operations could be localized to widespread, with minor to major, impacts on water resources and floodplains. Spills from oil and gas operations or tankers in the Laguna Madre or Gulf of Mexico could be transported by water into the park and cause widespread impacts and result in long-term clean-up and remediation.

Cumulative impacts on water resources and floodplains throughout the park are expected to be localized near developments, with short to long-term, negligible to minor, adverse impacts; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, adverse impacts on the park's water resources and floodplains, primarily along the park's shorelines.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on water resources. Existing park, commercial, and recreational vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and the continuing operation of two gas pipelines would result in localized, long-term, negligible to minor, adverse impacts on water resources and floodplains within the analysis area. Cumulative impacts from existing and future oil and gas operations in and

adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, negligible to minor, adverse impacts localized near developments throughout the park; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate, adverse impacts. No impairment to water resources and floodplains would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Water Resources and Floodplains

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, resulting in the short-term occupancy of 100-year floodplains on up to 9 acres; and if completed to produce hydrocarbons, long-term occupancy of 2.16 acres.

Existing impacts on water resources and floodplains within the analysis area would be similar to Alternative A, No Action, with localized, long-term, negligible to minor, adverse impacts associated with park, commercial, and recreational vehicle use on the 12.5-mile Gulf beach, visitor use on the beach, and the continuing operation of two gas pipelines.

There is no practicable alternative to siting the proposed access road, well/production pad, and flowline within the 100-year floodplain because the entire park, with the exception of the higher dunes, is located within floodplains. Impacts could result from changes in surface and subsurface hydrology and risk of contamination from contaminating and hazardous substances. The application of mitigation measures and conditions of approval in the plan of operations would reduce the potential for these impacts to occur.

The proposed road cut would cause the loss of 9,000 square feet of foredunes. If the wells were not placed in production, the foredune would be stabilized and revegetated. If the wells were placed in production, the sides of the pass would be vegetated to prevent additional erosion from wind passing through the break in the dunes. The proposed cut through the foredunes would result in a localized, short to long-term, negligible, adverse impact on the barrier island's role as a defense to prevent or slow the affects of hurricanes on the Texas mainland.

The drilling of the wells would require the use of 1.3 million gallons of water. This water could be obtained from either a new water well; connecting a temporary delivery line from an existing water well at the Dunn-Murdock#1 location 2.5-miles south, along the beach, to the proposed wellsite; or by hauling 155 loads (1300 barrels per load) of water from a park fire hydrant located at the end of Park Road 22 to drill Well No. 1-1000S and 85 loads to drill Well No. 1-1008S. The potential impact associated with drilling a water well includes depletion or contamination of the aquifer in the Goliad formation located between 1400 and 1700 feet. The Texas Natural Resources Conservation Commission has identified useable-quality ground water in this zone; and the Railroad Commission of Texas and NPS have applied mitigation measures to ensure that drilling, production and plugging operations would not impact ground water quality.

Use of the delivery line and pumps would eliminate the potential for trucks transporting water along the 12.5-mile segment of Gulf beach to leak or spill motor oil, coolant, or other lubricants on the beach, but would cause other issues related to refueling, secondary containment, noise, public safety, and the need for multiple pumps to push the water to the well site. Acquiring water from any of the sources; the park fire hydrant, existing water well, or from a new well, would cause widespread, short-term, negligible, adverse impacts to water resources.

The potential for leaks and spills exists during all phases of oil and gas operations, resulting in impacts that could be localized, with minor to major, short-term adverse impacts on water resources and floodplains; however, with the mitigation measures included with this alternative, the intensity of impacts would be reduced.

Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells would result in impacts similar to those described under No Action, with localized, long-term, negligible to minor, adverse impacts on water resources and floodplains within the analysis area.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on water resources and floodplains throughout the park would be similar to those described under No Action, with impacts from existing and future oil and gas operations in and adjacent to the park, dredging and maintenance of the Intracoastal Waterway and other channels in the Laguna Madre near the park, park developments and operations, and visitor uses, resulting in short to long-term, negligible to minor, adverse impacts localized near developments throughout the park; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate, adverse impacts.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, resulting in the short-term occupancy of 100-year area, would result in localized, short to long-term negligible to minor, adverse impacts on water resources and floodplains. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, routine park operations, and visitor uses are expected to result in short to long-term, negligible to minor adverse impacts, localized near developments throughout the park; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts. No impairment to water resources and floodplains would result from implementation of this alternative.

3.5. Impacts to Wetlands

Methodology

To analyze the impacts on wetlands, all available information on water resources in the park was compiled including: personal observations, consultation with other agencies and wetland specialist, the parks approved Oil and Gas Management Plan, landcover classification data, and wetland maps.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible:	an action that could result in a change to a natural physical resource, but the change would be so small that it would not be of any measurable or perceptible consequence.
Minor:	an action that could result in a change to a natural physical resource, but the change would be small and of little consequence.
Moderate:	an action that could result in a change to a natural physical resource; the change would be measurable and of consequence.
Major:	an action that would result in a noticeable change to a natural physical resource; the change would be measurable and result in a severely adverse or major beneficial impact.

Affected Environment

Wetland categories occurring in the park include marine, estuarine, and palustrine wetlands. Marine wetlands include beaches and the splash zone of the open Gulf of Mexico. Estuarine wetlands include intertidal aquatic beds such as seagrasses and unconsolidated shores such as

wind-tidal flats. Palustrine wetlands include emergent wetlands and freshwater and ephemeral ponds. Approximately 60% of the park is comprised of wetlands.
On August 24, 2001, BEI, under contract by BNP, and Frontier Surveying Co. performed a site visit and the wetland determination of the proposed analysis area. BEI personnel performed another site visit on September 6, 2001, to verify the lack of hydrology and hydric soils along the proposed pipeline route after Padre Island National Seashore had received the majority of it's 7.46 inches of rain in August, 2001. Based on a site survey performed by BEI, the proposed pad site, operations area, and access road are located in uplands: therefore, a U.S. Army Corps of Engineers Section 404 permit would not be needed for these areas of the proposed operations. There are emergent wetlands located along a 55.3-foot section of the pipeline corridor near the AEP's pipeline tie-in point. Wetlands totaling 2,765 square feet (0.0636 acres) would be directly impacted by construction and maintenance of this segment of pipeline. To minimize the impacts, the 50 foot wide construction corridor for the pipeline would be reduced to 25 foot in the wetland, resulting in a reduction of impacts to 1,382.5 square feet (0.032 acres). The NPS adheres to the administration's "no-net loss" principle for wetlands protection. The adversely impacted area represents less then one tenth of an acre, therefore compensation for the disturbed wetland is not required.

Impacts of Alternative A, No Action, on Wetlands

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on wetlands. However, impacts on wetlands in the analysis area would continue as the result of vehicle use along the 12.5-mile segment of Gulf beach, visitor uses on the beach, and the continuing operation of 2 gas pipelines.

Park staff, 12 oil and gas operators, and an estimated 95,000 (18% of annual visitation) park visitors use the 12.5-mile segment of Gulf beach for vehicular access. Vehicle access on the Gulf beach is recommended above the Gulf beach "wet line" to prevent excessive erosion along the beach. Vehicles would compact and rut the beach sand. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. Surface run-off or extremely high tides could transport these spilled substances into the wet-zone, resulting in localized, long-term, negligible, indirect adverse impacts on the marine wetlands along the 12.5-mile segment of Gulf beach.

Visitor uses on the beach include camping, fishing, swimming, wading, picnicking, nature viewing, and beachcombing. The visitor use period extends from May through September, peaking in August; and would be concentrated in the first 5 miles of Gulf beach where most visitor use occurs. Visitor uses would result in localized, long-term, negligible, direct and indirect adverse impacts on the marine wetlands along the 12.5-mile segment of Gulf beach.

View of wetland area with AEP pipeline marker in the distance.

Two gas pipelines are located west of the proposed wellsites. Both pipelines are operating under approved plans of operations pursuant to the NPS's 36 CFR 9B regulations. Segments of both pipelines are located within the analysis area for the proposed Lemon/Lemon Seed Unit wells, and within emergent wetlands. Routine maintenance along the pipeline corridors would include accessing the pipeline corridor by truck or ATV to inspect surface equipment, and on occasion excavating small sections of the pipelines to inspect the integrity of the pipe. A backhoe/front-loader would be used to excavate and replace segments of pipe. If trucks accessed pipeline in emergent wetlands areas when the soils were saturated, vehicles could cause rutting or compaction of soils, and damage or kill vegetation. The use of an ATV using a one-way pass technique would minimize these impacts by reducing the severity of rutting, and vegetation would be temporarily laid over rather than crushed or broken. Unless there was an emergency, work of this nature would be limited to periods when the pipeline segment located within emergent wetlands is not covered with water. Removal of vegetation and excavation of segments of pipeline for inspection and/or replacement, would directly impact a small area of wetlands within the immediate area of work. If there is standing water, sedimentation could indirectly impact a larger area around the worksite. There is a potential for the pipelines to leak or rupture, releasing hydrocarbon products and contaminating emergent wetlands. If leaks or spills occur during periods of high water, contaminants could be transported via surface waters great distances, thereby increasing the potential for impacting wetlands beyond the immediate area and degrading wetlands values. Impacts from spills could be serious, with affects ranging from localized to widespread, with minor to major, adverse impacts on wetlands. However, with the mitigation measures included in the operators' plans of operations, and prompt response in the event of a spill, the intensity of impacts are reduced.
Existing uses, including vehicle access along the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of the two gas pipelines, would result in localized, long-term, negligible to minor, direct and indirect, adverse impacts on marine and emergent wetlands within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on wetlands throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres, and spills from oil and gas activities located adjacent to the park, including tanker traffic in the Gulf of Mexico. Dredging and maintenance of the Intracoastal Waterway and other channels in the Laguna Madre near the park could increase sedimentation in the Laguna Madre waters inside the park, resulting in covering of seagrasses. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Other park activities that could contribute to impacting wetlands parkwide include prescribed fires, routine maintenance of park roads, park and visitor vehicle use, and recreational activities.

Existing and future development of oil and gas-related roads, pads and flowlines within the park could directly and indirectly impact wetlands. Leaks and spills from oil and gas operations could be serious, with minor to major, impacts on wetlands. Spills from oil and gas operations in the Laguna Madre or Gulf of Mexico could be transported by water onto the park's shorelines, comprised of marine wetlands on the Gulf shore and wind-tidal flats on the Laguna Madre shore, causing widespread impacts and resulting in long-term clean-up and remediation.

Cumulative impacts on wetlands throughout the park are expected to result in short to long-term, minor, direct and indirect, adverse impacts localized near developments throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's wetlands, primarily along the park's shorelines.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled; however, existing vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines, would result in localized, long-term, negligible to minor, direct and indirect, adverse impacts on marine and emergent wetlands within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, minor, direct and indirect, adverse impacts, localized near developments throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's wetlands, primarily along the park's shorelines. No impairment to wetlands would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Wetlands

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, and if completed to produce hydrocarbons would result in short-term, direct impacts on 0.032 acres of emergent wetlands associated with the placement of the flowline, until the surface of the flowline corridor is reclaimed.

Existing impacts on wetlands within the analysis area would be similar to Alternative A, No Action, with localized, long-term, negligible to minor, direct and indirect, adverse impacts on marine and emergent wetlands associated with vehicle access along the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of the two gas pipelines.

Project design would minimize impacting park wetlands. There is no practicable alternative to siting a segment of the proposed flowline within emergent wetlands, or for using the Gulf beach as an access corridor.

BNP would use a 12.5-mile segment of Gulf beach to access its proposed cut/access road through the foredunes to access the proposed site for the well/production pad and flowline. BNP would be required to confine vehicle use above the "wet-line" (see Table 5 for mitigation measures applied by the NPS as conditions of approval). As described above under No Action, poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. These substances could then be introduced into the Gulf by surface run-off or extremely high tides, resulting in localized, long-term, negligible, indirect adverse impacts on the marine wetlands along the 12.5-mile segment of Gulf beach.

Emergent wetlands are located along a 55.3-foot section of the proposed flowline corridor near the AEP's pipeline tie-in point. Construction and maintenance of the flowline would impact emergent wetlands. To minimize impacts, the NPS would require that the standard 50-foot wide construction corridor be reduced to 25-foot in the wetlands, resulting in reducing impacts to emergent wetlands to 1,382.5 square feet (0.032 acres). The flowline would be connected to the existing AEP/HPL pipeline using a procedure known as a "hot tap". This method allows pipelines that are in service to be connected without the contents being released. A 15-foot by 15-foot (225 square foot) area would be excavated to make the tie-in. Any ground water that seeps into the excavation would be pumped out using PVC well points and diaphragm pumps. The liquids would be diverted and filtered through a silt screen and native hay bales. Any contaminated liquids or soils would be removed and disposed at a State-approved disposal facility outside the park, while the remaining collected water would be released onto the surrounding area.

The NPS adheres to the administration's principle of "no-net loss of wetlands." The area that would be directly impacted would comprise less then one tenth of an acre. No indirect wetlands impacts from the construction of the flowline is anticipated; however, the NPS's Director's Order 77.1 gives the Superintendent the option to waive compensation of wetlands impacts when wetlands do not exceed

1/10 acre. In this specific case, the Superintendent has determined that compensation for direct/indirect impacts on wetlands would not be required.

Vehicle access above the "wet-line" along the 12.5-mile segment of Gulf beach, and construction and maintenance of the flowline within 0.032 acre of emergent wetlands would result in localized, short to long-term, negligible to minor, direct and indirect adverse impacts on wetlands.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on wetlands throughout the park would be similar to those described under No Action, with short to long-term, minor, direct and indirect, adverse impacts localized near developments throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's wetlands, primarily along the park's shorelines.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be short-term, direct impacts on 0.032 acres of emergent wetlands associated with the placement of the flowline, until the surface of the flowline corridor is reclaimed. Vehicle access above the "wet-line" along the 12.5-mile segment of Gulf beach, and construction and maintenance of the flowline within 0.032 acre of emergent wetlands, in addition to existing activities within the analysis area, would result in localized, short to long-term, negligible to minor, direct and indirect adverse impacts on wetlands. Cumulative impacts would be similar to those described under Alternative A, No Action, with short to long-term, minor, direct and indirect, adverse impacts, localized near developments throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's wetlands, primarily along the park's shorelines. No impairment to wetlands would result from implementation of this alternative.

3.6. Impacts on Vegetation

Methodology

To analyze the impacts on vegetation, the park utilized research, other park plans, the parks approved Oil and Gas Management Plan, personal observations, and consultation with other permitting agencies. The thresholds of change for the intensity of an impact are defined as follows:

Negligible: an action that could result in a change to a population or individuals of a species or a resource, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: an action that could result in a change to a population or individuals of a species or a resource. The change would be small and of little consequence.

Moderate: an action that could result in a change to a population or individuals of a species or a resource. The change would be measurable and of consequence to the species or resource.

Major: an action that would have a noticeable change to a population or individuals of a species or a resource. The change would be measurable and result in a severely adverse or major beneficial impact, or possible permanent consequence, upon the species or resource.

Affected Environment

Drawe (1992) provides a detailed characterization of species composition and abundance in the various vegetation types on Padre Island. He found 140 species of plants, including 27 grasses, 92 forbs, 3 cacti, 3 wood species, and 15 other species.

The area in the vicinity (i.e. within 1,000 feet) of the proposed operations area is comprised of a diverse group of habitats. Higher elevations near the Gulf beach were made up of two rows of foredunes adjacent to the Gulf beach and high dune fields with scattered upland swales. The two rows of foredunes were typically dominated by silver-leaf croton gulf croton (*Croton punctatus*), beach morning-glory (*Ipomea imperati*), goatfoot morning-glory (*Ipomea pre-caprae*), camphorweed (*Heterotheca subaxillaris*), prairie clover (*Dalea sp.*), western ragweed (*Ambrosia psilostachya*), and seaoats (*Uniola paniculata*) with associated species. The foredunes typically have vegetation coverage of 60%-90%.

The high dune fields were generally dominated by camphorweed, prairie clover, seaoats, seacoast bluestem (*Schizachyrium littorale*), western ragweed, and some tropic croton (*Croton glandulosus* var. *lindheimeri*). The area in the vicinity of the proposed work is comprised of a diverse group of habitats. The majority of the work area is comprised of hummocky uplands. Hummocky uplands are typically dominated by gulfdune paspalum (*Paspalum monostachyum*), and seacoast bluestem. Slim-leaf panicum (*Dichanthelium linearifolium*) tends to dominate the lower areas. Other species inhabiting the hummocky uplands include bulrush (*Schoenoplectus pungens* var. *pungens*), seaside (Marsh) large leaf pennywort (*Hydrocotyle bonariensis*), blue mist flower (*Conoclinium coelestinum*), narrow-leaf sumpweed (*Iva angustifolia*), bushy bluestem (*Andropogon glomeratus*), prairie clover, partridge pea (*Chamaecrista fasciculate* var. *fasiculata*), camphorweed, and American snoutbean (*Rhynchosia americana*). High hummock ridges are generally comprised of prairie clover, partridge pea, gulfdune paspalum, and camphorweed, with Eastern prickly pear (*Opuntia ficus-indica*), seaoats, white-stem wild indigo (*Baptisia bracteata* var. *leucophaea*), and narrow-leaf sumpweed. High hummock ridges are typically 75%-90% covered with vegetation.

Lower lying areas are comprised of transitional areas and sparsely vegetated to unvegetated sand flats. The transitional areas are typically dominated by marshhay cordgrass (*Spartina patens*), bulrush, and gulfdune paspalum, with sea ox-eye daisy (*Borrichia frutescens*), narrow-leaf sumpweed, bushy bluestem, sea lavender (*Limonium carolinianum*), blue mistflower, largeleaf pennywort, frog fruit (*Phyla nodiflora*), and slim-leaf dichanthelium. Transitional areas are usually 60%-85% covered with vegetation. The sparsely vegetated to unvegetated sand flats are dominated by marshhay cordgrass and sea oxeye daisy. Vegetation coverage ranges from 0%-60%. These flats are non-tidal. Drawe (1992) provides a detailed characterization of species composition and abundance in the various vegetation types on Padre Island. There are no state or federally listed threatened or endangered plant species known to occur in the project area (NPS 2001).

Impacts of Alternative A, No Action, on Vegetation

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on vegetation. However, impacts on vegetation in the analysis area would continue as the result of the continuing operation of 2 gas pipelines.

Two gas pipelines are located west of the proposed wellsites. Both pipelines are operating under approved plans of operations pursuant to the NPS's 36 CFR 9B regulations. Segments of both pipelines are located within the analysis area for the proposed Lemon/Lemon Seed Unit wells. Vegetation covers the pipeline corridors. Routine maintenance along the pipeline corridors would include accessing the pipeline corridor by truck or ATV to inspect surface equipment, and on occasion excavating a section of

the pipeline to inspect the integrity of the pipeline. A backhoe/front-loader would be used to excavate and replace segments of pipe. If trucks accessed pipeline in areas when the soils were saturated, vehicles could cause rutting or compaction of soils, and damage or kill vegetation. The use of an ATV using a one-way pass technique would minimize these impacts by reducing the severity of rutting, and vegetation would be temporarily laid over rather than crushed or broken. Unless there was an emergency, work of this nature would be limited to periods when the pipeline segment is not covered with water. Removal of vegetation and excavation of segments of pipeline for inspection and/or replacement, would directly impact a small area of vegetation within the immediate area of work.

There is a potential for the pipelines to leak or rupture, releasing hydrocarbon products and damaging or killing vegetation. Impacts from spills could be serious, with affects ranging from localized to widespread, with minor to major, adverse impacts on vegetation. However, with the mitigation measures included in the operators' plans of operations, and prompt response in the event of a spill, the intensity of impacts are reduced.

Existing uses, including the continuing operation of two gas pipelines, would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on vegetation within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on vegetation throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, and future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Other park activities that could contribute to impacting vegetation parkwide include prescribed fires, routine maintenance of park roads, and park and visitor vehicle use, and recreational activities.

Existing and future development of oil and gas-related roads, pads and flowlines within the park could directly and indirectly impact vegetation. Leaks and spills from oil and gas operations could be serious, with minor to major, impacts on vegetation; however, with the mitigation measures included in the operators' plans of operations, and prompt response in the event of a spill, the intensity of impacts are reduced.

Cumulative impacts on vegetation throughout the park are expected to result in short to long-term, minor, direct and indirect, adverse impacts, localized near developments throughout the park.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled; however, existing uses, including the continuing operation of two gas pipelines, would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on vegetation within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, routine park operations, and visitor uses are expected to result in short to long-term, minor, direct and indirect, adverse impacts, localized near developments throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's vegetation, primarily along the park's shorelines. No impairment to vegetation would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Vegetation

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, and if completed to produce hydrocarbons would result in short-term loss of vegetative cover on up to 9 acres, and the long-term occupancy of 2.16 acres.

Existing impacts on vegetation within the analysis area would be similar to Alternative A, No Action, with localized, short to long-term, negligible to minor, direct and indirect, adverse impacts associated with the continuing operation of two gas pipelines located west of the proposed wellsites.

Construction of the cut through the foredunes, access road and well/production pad would result in the direct loss of approximately 4.17 acres of hummocky uplands vegetation. If the wells do not go into production, the entire 4.17 acres would be reclaimed, resulting in localized, short-term, minor, adverse impacts on vegetation until the site is satisfactorily reclaimed. If the well is placed in production, the well pad would be reduced by 2.1 acres; and a flowline would be installed to connect with one of the existing pipelines located west of the proposed wells. The reduction of the well pad by 2.1 acres would result in a localized, short-term, minor, adverse impact on vegetation until the site is revegetated to 70% native cover.

The flowline would temporarily disturb an additional 4.88 acres of hummocky uplands, of which 0.032 acres are emergent wetlands, while the flowline is being buried, and until the flowline corridor is revegetated. Over the long-term operation of the flowline, occasional disturbance to vegetation within the flowline corridor could occur as a result of routine maintenance, including access over the corridor by truck or ATV to inspect surface equipment, and on occasion excavating a section of the flowline to inspect the integrity of the line.

The potential for leaks and spills exists during all phases of oil and gas operations, resulting in impacts that could be serious on a very local level, with minor to major, short-term adverse impacts on vegetation; however, with the mitigation measures included with this alternative, the intensity of impacts would be reduced. Mitigation measures include constructing a sloped 8' x 8' corrugated steel well cellar, and lining the pad underneath the caliche with a 20-millimeter thick polyethylene liner that would extend over a 3'-high berm surrounding the perimeter of the pad. These measures are intended to contain any spilled substances and prevent the downward percolation.

Direct and indirect impacts on vegetation could occur as a result of the introduction of exotic vegetation resulting from the placement of fill material or the use of construction equipment. However, with the mitigation measures included with this alternative, the potential and intensity of impacts would be reduced.

Upon plug and abandonment of the wells, the imported caliche would be removed, the site recontoured to natural conditions, and native vegetation re-established to 70% cover. Plugging and reclamation activities would result in a localized, short-term, minor, adverse impact on vegetation.

Construction of the dune cut/access road and well/production pad, and flowline; and drilling and producing the wells would result in the long-term loss of vegetation on up to 9 acres, and localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on vegetation in the analysis area.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts would be similar to those described under No Action, with impacts from existing and future oil and gas operations in the park, park developments and operations, and visitor uses, resulting in short to long-term, minor, direct and indirect, adverse impacts, localized near developments throughout the park.

Conclusion
Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be short-term loss of vegetative cover on up to 9 acres, and the long-term occupancy of 2.16 acres. Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on vegetation. Cumulative impacts would be similar to those described under Alternative A, No Action, with short to long-term, minor, direct and indirect, adverse impacts on vegetation throughout the park. No impairment to vegetation would result from implementation of this alternative.

3.7. Impacts to Natural Soundscapes

Methodology
To analyze the impacts on natural soundscapes, the park utilized personal observation, research, and the parks approved Oil and Gas Management Plan.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible: the impact is barely detectable.

Minor: the impact is slight but detectable.

Moderate: the impact is readily apparent.

Major: the impact is severely adverse.

Affected Environment
The natural quiet of Padre Island National Seashore contributes heavily to a positive visitor experience. Surveys in 1987 (Ditton and Gramann) and 1989 (Gramann and Ruddell) examined visitor motive for coming to Padre Island. The top motives include “to get away,” “be outdoors,” and “for rest and relaxation.” In 1998, the NPS contracted Dr. Jim Foch of Livermore Laboratory to record background sound measurements at various locations in the park. A useful measure of background sounds is the sound level observed 90% of the time, abbreviated L90. Although measurements were not recorded at the exact location of the project area, the relatively constant sound level of the surf (about 62 dB at 60 yards from the water) is considered the “background” noise level along the Gulf shoreline. The L90 levels inland fall off in a systematic manner with distance from the surf (Foch, 1998).

Impacts of Alternative A, No Action, on Natural Soundscapes
Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on natural soundscapes. However, impacts on natural soundscapes in the analysis area would continue as the result of vehicle use along the 12.5 mile segment of Gulf beach, visitor uses on the beach, and the continuing operation of 2 gas pipelines.

Vehicle use and visitor uses on the 12.5-mile segment of Gulf beach could occasionally result in sounds that exceed the 60-decibel background sound levels when drivers honk horns, and radios are very loud.

Existing operation of the 2 pipelines located to the west of the proposed wellsites could impact natural soundscapes more readily due to the background sound measurements being very low, in the 30 to 45 decibel range. Routine maintenance of the pipeline from using a backhoe/front loader would be heard

several hundred feet away, but backcountry visitor use is not common, and visitors recreating on the Gulf beach would not hear these activities.

Existing uses, including vehicle access along the Gulf beach, visitor uses on the beach, and continuing operation of the two pipelines, would result in short-term, negligible to minor, adverse impacts on natural soundscapes within the analysis area.

Cumulative Impacts

Under Alternative A, cumulative impacts on natural soundscapes throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park; and from new drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario. As some operations are developed, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Other park activities that could contribute to natural soundscapes include routine maintenance of park roads, park and visitor vehicle use, and recreational activities such as motor boating and playing radios at a high volume. On occasional, military over flights over the park introduces noise and super-sonic booms audible in the park. As a result of these activities, cumulative impacts on natural soundscapes throughout the park is expected to result in short to long-term, negligible to moderate, adverse impacts, localized near sources.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled; however, existing vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines would result in localized, short-term, negligible to minor, adverse impacts on natural soundscapes within the analysis area. Cumulative impacts from existing and future oil and gas operations in the park, routine park operations, and visitor uses are expected to result in short to long-term, negligible to moderate, adverse impacts on natural soundscapes, localized near sources throughout the park. No impairment to natural soundscapes would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Natural Soundscapes

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be completed to produce hydrocarbons.

Existing impacts on natural soundscapes within the analysis area would be similar to Alternative A, No Action, with localized, short-term, negligible to minor, adverse impacts associated with vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines.

Construction of the dune cut/access road, well/production pad and flowline, and routine maintenance activities during production would result in localized and short-term increases in noise associated with vehicle traffic, heavy equipment and ground-disturbing activities. Elevated noise would be greatest during the short-term drilling of the wells. Sound levels could reach 90 decibels on the drill rig. At 1,500 feet from the drill rig, sound levels would approach background levels ranging from 30 to 45 decibels. Elevated noise during the drilling phase would result in localized, short-term, minor to moderate, adverse impacts on natural soundscapes within 1,500 feet of the wellpad. During the long-term production life of the wells, occasional workover operations could occur at 5 to 10-year intervals and take one to two weeks to complete. Workovers would increase noise levels, but at much lowest intensity and duration of drilling a well. Production operations would result in localized, long-term, negligible to minor, adverse impacts from routine daily pickup truck traffic, periodic larger truck traffic necessary to remove produced liquids, and the use of a compressor to remove gas if necessary.

Construction of the dune cut/access road and well/production pad and flowline, and drilling and producing the wells would result in short to long-term, negligible to moderate, adverse impacts on natural soundscapes, localized near sources in the analysis area.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on natural soundscapes throughout the park would be similar to those described under No Action, with existing and future oil and gas operations in the park, routine park operations, visitor uses, and occasional military over flights resulting in localized, short to long-term, negligible to moderate, adverse impacts near sources.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. Construction of the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in short to long-term, negligible to moderate, adverse impacts on natural soundscapes, localized around sources. Cumulative impacts would be similar to those described under No Action, with localized, short to long-term, negligible to moderate, adverse impacts on natural soundscapes throughout the park. No impairment to natural soundscapes would result from implementation of this alternative.

3.8. Impacts on Wildlife

Methodology

To analyze the impacts on wildlife, the park utilized research, other park plans, the parks approved Oil and Gas Management Plan, personal observations, and consultation with other permitting agencies.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible:	an action that could result in a change to a population or individuals of a species or a resource, but the change would be so small that it would not be of any measurable or perceptible consequence.
Minor:	an action that could result in a change to a population or individuals of a species or a resource. The change would be small and of little consequence.
Moderate:	an action that could result in a change to a population or individuals of a species or a resource. The change would be measurable and of consequence to the species or resource.
Major:	an action that would have a noticeable change to a population or individuals of a species or a resource. The change would be measurable and result in a severely adverse or major beneficial impact, or possible permanent consequence, upon the species or resource

Affected Environment

During Belaire Environmental Inc.'s (BEI) August 24 and September 6, 2001 field investigations, personnel made notes of wildlife observed in the area of the proposed access road and wellpad. The only species observed were the Mourning Dove (*Zenaida macroura*), coyote (*Canis latrans*), Northern Bobwhite Quail (*Colinus virginianus*), Black-tailed jackrabbit (*Lepus californicus*) and white-tailed deer (*Odocoileus virginianus*). The diverse vegetation offers feeding opportunities for a wide variety of birds and other wildlife.

Birds. Continental Shelf Associates (CSA), Inc. (1985), Chapman (1981, 1988), Brown and Huey (1991) and U.S. Department of the Interior (2000), provide data and discussions of the

wildlife utilization of the project area. Ecoservices (1993) surveyed bird activity south of the project site from July 1992 through April 1993. A total of 281,045 birds of 97 species were identified and counted. Important species included the Brown Pelican (*Pelecanus occidentalis*), Piping Plover (*Charadrius melodus*), Snowy Plover (*C. alexandrinus*), Peregrine Falcon (*Falco peregrinus*), and the Reddish Egret (*Egretta rufescens*). Species of goose, duck, gull, tern and sandpiper were also observed. Padre Island has 322 species of birds, including migratory and resident waterfowl, shorebirds, neo-tropical songbirds and raptors. During fall and winter, Sandhill Cranes (*Grus canadensis*) frequent the west side of Padre Island, near Bird Island Basin. The cranes can be observed feeding in the wetlands, uplands, and shallow water of the Laguna Madre. Many bird species utilize ephemeral and freshwater ponds. They include Northern Bobwhite Quail (*Colinus virginianus*), Northern Harrier (*Circus cyaneus*), Sandhill Crane, Great Egret (*Casmerodius albus*), Great Blue Heron (*Ardea herodias*), Long-billed Curlew (*Numenius americanus*), Sanderling (*Caldris alba*), Killdeer (*Charadrius vociferus*), terns, ducks, and grebes (DOI 2000).

Mammals. Mammals likely to utilize habitat in the general project area include the gulf coast kangaroo rat (*Dipodomys compactus*.), Texas pocket gopher (*Geomys personatus*), coyote (*Canis latrans*), northern grasshopper mouse *(Onychomys leucogaster*), eastern mole (*Scalopus aquaticus*), raccoon (*Procyon lotor*), the eastern cottontail (*Sylvilagus floridanus*), and Mexican free-tailed bat (*Tadarida brasiliensis mexicana*) (CSA 1985, and DOI 2000).

Reptiles and Amphibians. Reptiles likely to utilize habitat in the general project area include the keeled earless *lizard (Holbrookia propinqua propinqua*), whiptail lizard (*Cnemidophorus sp*.), western diamondback rattlesnake (*Crotalus atrox*), slender glass lizard (*Ophisaurus attenuatus*), western massasauga rattlesnake (*Sistrurus tergeminus*), western hog-nosed snake (*Heterodon nasicus*), glossy snake (*Arizona elegans*), checkered garter snake (*Thamnophis marcianus*), diamondback water snake (*Nerodia rhombifer*), Texas coral snake (*Micrurus fulvius*), red-eared slider (*Trachemys scripta elegans*), and the yellow mud turtle (*Kinosternon flavescens*) (Chapman 1988, CSA 1985, and DOI 2000). The ornate box turtle (*Terrapene ornata ornata*) has also been reported on the island (CSA 1985). Amphibians found on the island include the northern leopard frog (*Rana pipiens*), green tree frog (*Hyla cinerea*) and Hurter's spadefoot toad (*Scaphiopus holbrookii hurterii*).

Impacts of Alternative A, No Action, on Wildlife

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on wildlife. Existing impacts on wildlife in the analysis area would continue as the result of vehicle use along the 12.5- mile segment of Gulf beach by park staff, visitors, and 12 nonfederal oil and gas operators. Vehicles on the Gulf beach would include 2 and 4-wheel drive cars and trucks, recreational vehicles, and on occasion larger vehicles associated with routine maintenance activities at the oil and gas sites. At the 5-mile marker, the Gulf beach is recommended for 4-wheel drive vehicles only. Vehicle use along the Gulf beach would compact and rut the beach sand.

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on wildlife. However, impacts on wildlife in the analysis area would continue as the result of vehicle use along the 12.5-mile segment of Gulf beach, visitor uses on the beach, and the continuing operation of 2 gas pipelines.

This segment of Gulf beach is currently used by 12 nonfederal oil and gas operators to access existing operations located throughout the park, by park staff to conduct routine park operations, and by an estimated 95,000 (18% of annual visitation) park visitors that venture further than the Little Shell area (6 to 9-miles). Vehicle access would result in short-term movement of bird species utilizing the shoreline for loafing or resting. Shorebirds would take temporary flight when vehicles approach too close, and

land to resume their activity after vehicles have passed. Displaced wildlife could increase competition in adjacent areas over the short-term, resulting in a negligible, adverse impact on shorebirds.

Vehicles would compact and rut the beach sand. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. Surface run-off or extremely high tides could transport these spilled substances into the wet-zone. In a study conducted by Texas A&M, Center for Coastal Studies (Englehard and Withers 1997), it was found that benthic organisms recovered quickly, within 10 days of the disturbance, following mechanical raking of the beach. Some loss of benthic organisms would be expected due to crushing by tires and changes in the aerobic conditions of the compressed wetted sand environment. It is expected that similar recovery of the benthic organisms would occur in the case of infrequent vehicle travel in the wet zone. Vehicle impacts would result in localized, short-term, negligible to minor, adverse impacts on shorebirds and benthic organisms.

Visitor uses on the beach include camping, fishing, swimming, wading, picnicking, nature viewing, and beachcombing. The visitor use period extends from May through September, peaking in August; and would be concentrated in the first 5 miles of Gulf beach where most visitor use occurs. Visitor uses on the beach would displace wildlife, primarily shorebirds, resulting in localized, negligible to minor, adverse impacts on shorebirds.

Two gas pipelines are located west of the proposed wellsites. Both pipelines are operating under approved plans of operations pursuant to the NPS's 36 CFR 9B regulations. Segments of both pipelines are located within the analysis area for the proposed Lemon/Lemon Seed Unit wells. Routine maintenance along the pipeline corridors would include work crews occasionally accessing the pipeline corridor by truck or ATV to inspect surface equipment, and on occasional basis excavating small sections of the lines to inspect the integrity of the pipelines. On occasion, a backhoe/front-loader would be used to excavate and replace segments of pipe. Use of heavy equipment could result in the incidental take of individuals, and alter habitat by rutting or compacting soils, and damaging or killing vegetation. The use of an ATV using a one-way pass technique would minimize these impacts by reducing the severity of rutting, and vegetation would be temporarily laid over rather than crushed or broken. Unless there was an emergency, work of this nature would be limited to periods when the pipeline segment located within emergent wetlands is not covered with water. Damage or removal of soil and vegetation along segments of the pipelines would result in the short-term modification of wildlife habitat. There is a potential for the pipelines to leak or rupture, releasing hydrocarbon products and contaminating vegetation and soils. If leaks or spills occur during periods of high water, contaminants could be transported via surface waters great distances, thereby increasing the potential for impacting wildlife habitat beyond the immediate area. Impacts from spills could be serious, with affects ranging from localized to widespread, with minor to major, adverse impacts on wildlife. However, with the mitigation measures included in the operators' plans of operations, and prompt response in the event of a spill, the intensity of impacts are reduced. Impacts from the continuing operation and maintenance of the two pipeline segments within the analysis area would result in localized, short to long-term, negligible to minor, adverse impacts on wildlife.

Existing uses, including vehicle access along the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of the two gas pipelines, would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on wildlife within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on wildlife throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres, and spills from oil and gas activities located adjacent to the park, including tanker traffic in the Gulf of Mexico. Dredging and maintenance of the Intracoastal Waterway and other channels in the Laguna Madre near the park could increase

turbidity in the Laguna Madre waters inside the park. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Other park activities that could contribute to impacting wildlife parkwide include prescribed fires, routine maintenance of park roads, and park and visitor vehicle use, and recreational activities.

Existing and future development of oil and gas-related roads, pads and flowlines within the park would result in the direct loss of wildlife habitat. Displaced wildlife could potentially die of natural causes or displace other wildlife. There is a remote possibility for the incidental take of wildlife during the course of operations from vehicle use, construction activities, or from ingesting leaked or spilled hydrocarbons and contaminating or hazardous substances. Leaks and spills from oil and gas operations could be serious, with negligible to moderate, impacts on wildlife. Spills from oil and gas operations in the Laguna Madre or Gulf of Mexico could be transported by water onto the Gulf or Laguna Madre shores, causing widespread impacts and resulting in long-term clean-up and remediation. Elevated noise levels, particularly during drilling operations, could displace wildlife, but most wildlife are expected to return after becoming acclimated to some noise disturbance. Mitigation measures, including use of diesel electric drilling rig and hospital mufflers and compressors to reduce noise levels, fencing the operations area to exclude wildlife, using primary and secondary containment to prevent leaks and spills from being released into the environment, preventing birds and bats from entering open-vent exhaust stacks, covering all open-topped tanks to minimize accidental injury or death of migratory birds, planting native willow shrubs or trees around production facilities to provide and perpetuate migratory bird habitat, preventing the introduction of exotic species, careful use of NPS-approved herbicides, good housekeeping, and routine monitoring and inspection of operations, are expected to substantially reduce the impacts to wildlife to short to long-term, negligible to minor, adverse impacts, localized around developments throughout the park.

Cumulative impacts on wildlife throughout the park are expected to result in short to long-term, negligible to minor, direct and indirect, adverse impacts localized near developments and activities throughout the park; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the park's wildlife, primarily along the park's shorelines.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on wildlife; however, existing vehicle use on the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of two gas pipelines would result in short to long-term, negligible to minor, direct and indirect, adverse impacts on wildlife, localized near developments and activities within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, negligible to minor, adverse impacts, localized near developments throughout the park; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts. No impairment to wildlife would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Wildlife

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, and if completed to produce hydrocarbons would result in the short-term loss of wildlife habitat on up to 9 acres, and the long-term occupancy of 2.16 acres.

Existing impacts on wildlife within the analysis area would be similar to Alternative A, No Action, with localized, short to long-term, negligible to minor, direct and indirect, adverse impacts associated with vehicle access along the 12.5-mile segment of Gulf beach, visitor use on the beach, and continuing operation of the two gas pipelines.

BNP would use a 12.5-mile segment of Gulf beach to access its proposed wellpad. BNP would be required to confine vehicle use above the "wet-line" (see Table 5 for mitigation measures applied by the NPS as conditions of approval). As described above under No Action, vehicles could compact and rut beach sands; and poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. Vehicle impacts would result in localized, short to long-term, negligible to minor, indirect, adverse impacts on shorebirds and benthic organisms.

Construction of the dune cut/access road, well/production pad, and flowline would result in the short to long-term loss of up to 9 acres of habitat and displacement of wildlife. Elevated noise levels, particularly during drilling operations, could displace wildlife, but most wildlife are expected to return after becoming acclimated to some noise disturbance. Displaced wildlife could increase competition in adjacent areas over the short-term. The construction of the access road and well/production pad would directly impact 4.17 acres of wildlife habitat. If the wells do not go into production, the entire 4.17 acres would be reclaimed, resulting in localized, short-term, negligible to minor, adverse impacts on wildlife.

If the wells are placed in production, the well pad would be reduced in half and a flowline installed to connect with one of the existing pipelines located west of the proposed wells. The reduction of the well pad by 2.1 acres would result in localized, short-term, negligible to minor, adverse impacts on wildlife. Flowline construction would disturb an additional 4.88 acres of hummocky uplands habitat, of which 0.032 acres are emergent wetlands. A temporary alteration of habitat would occur while the flowline is being buried, and until the surface is reclaimed. Impacts on wildlife from flowline placement would result in localized, short-term, negligible to minor, adverse impacts.

The potential for leaks and spills exists during all phases of oil and gas operations, resulting in impacts that could be serious on a very local level, with minor to major, short-term adverse impacts on geology and soils; however, with the mitigation measures included with this alternative, the intensity of impacts would be reduced.

Mitigation measures, including use of diesel electric drilling rig and hospital mufflers and compressors to reduce noise levels, fencing the operations area to exclude wildlife, using primary and secondary containment to prevent leaks and spills from being released into the environment, preventing birds and bats from entering open-vent exhaust stacks, covering all open-topped tanks to minimize accidental injury or death of migratory birds, planting native willow shrubs or trees around production facilities to provide and perpetuate migratory bird habitat, preventing the introduction of exotic species, careful use of NPS-approved herbicides, good housekeeping, and routine monitoring and inspection of operations, are expected to substantially reduce the impacts to wildlife.

Construction of the dune cut/access road and well/production pad, and flowline; and drilling and producing the wells would result in short-term loss of wildlife habitat on up to 9 acres, and the long-term occupancy of 2.16 acres, with localized, short to long-term, negligible to minor, adverse impacts, on wildlife in the analysis area.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on wildlife throughout the park would be similar to those described under No Action, with impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses, resulting in short to long-term, negligible to minor adverse impacts localized near developments; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate adverse impacts.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be short-term loss of wildlife habitat on up to 9 acres, and the long-term occupancy of 2.16 acres. Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term negligible to minor, adverse impacts on wildlife. Cumulative impacts would be similar to those described under Alternative A, No Action, with short to long-term, negligible to moderate, adverse impacts on wildlife throughout the park. No impairment to wildlife would result from implementation of this alternative.

3.9. Impacts on State and Federally Protected Species

Methodology

Information on state and federally protected species within Padre Island National Seashore was gathered from state and federal permitting agencies, research, personal observation, consultation with specialists, and reference materials. Known impacts caused by road and beach access by visitors and existing gas operations were also considered.

The thresholds of change for the intensity of an impact are defined as follows:

Negligible:	an action that could result in a change to a population or individuals of a species or a resource, but the change would be so small that it would not be of any measurable or perceptible consequence.
Minor:	an action that could result in a change to a population or individuals of a species or a resource. The change would be small and of little consequence.
Moderate:	an action that could result in a change to a population or individuals of a species or a resource. The change would be measurable and of consequence to the species or resource.
Major:	an action that would have a noticeable change to a population or individuals of a species or a resource. The change would be measurable and result in a severely adverse or major beneficial impact, or possible permanent consequence, upon the species or resource

Padre Island National Seashore has no designated critical habitat within the park's boundary for any federally listed species. An existing U.S. Fish and Wildlife Recovery Plan for the Kemp's Ridley sea turtle assigns the task of patrolling for nesting sea turtles to the park. According to a January 8, 2002 listing of federally protected species and the Texas Parks and Wildlife Department's website (TPWD http://tpwd.state.tx.us/nature/endang/), 42 listed federal and four state protected species potentially occur at Padre Island National Seashore (Appendix 1). Of these, the 27 species that have actually been documented at Padre Island National Seashore are listed in Table 9 below. The remaining 15 species have either not been documented and/or there is not suitable habitat within the park, and therefore will not be affected by the proposed project. Table 9 also includes four state-protected species (*) that have been documented in the park and will be addressed within this document because the NPS recognizes their sensitive status and provides them a high level of protection, similar to Federal listed species.

Table 9. State and Federally Protected Species Occurring or likely to Occur at Padre Island National Seashore.

SPECIES	FEDERAL	STATE
(T – Threatened, E – Endangered, SOC – Species of Concern, and S/A – Similar in Appearance)		
Reptiles and Amphibians		
American Alligator (*Alligator mississippiensis)*	T (S/A)	
Texas Horned Lizard (*Phrynosoma cornutum*)	SOC	T
Texas Indigo Snake (*Drymarchon corais erebennus)* *		T
Turtles		
Kemp's Ridley Sea Turtle *(Lepidochelys kempii)*	E	E
Loggerhead Sea Turtle (*Caretta caretta)*	T	T
Green Sea Turtle (*Chelonia mydas)*	T	T
Atlantic Hawksbill Sea Turtle (*Eretmochelys imbricata*)	E	E
Leatherback Sea Turtle (*Dermochelys coriacea*)	E	E
Birds		
Eastern Brown Pelican (*Pelecanus occidentalis*)	E	E
Reddish Egret (*Egretta rufescens*)	SOC	T
White-faced Ibis (*Plegadis chihi*)	SOC	T
Wood Stork (*Mycteria americana*) *		T
Interior Least Tern (*Sterna antillarum*)	E	E
Sooty Tern (*Sterna fuscata*)	T	
Black Tern *(Chlidonias niger)*	SOC	
Piping Plover (*Charadrius melodous*)	T	T
Bald Eagle (lower 48 states) (*Haliaeetus leucocephalus*)	T	T
Northern Aplomado Falcon (*Falco femoralis septentrionalis*)	E	E
Ferruginous Hawk *(Buteo regalis)*	SOC	
Swallow-tailed Kite (*Elanoides forficatus*) *		T
White-tailed Hawk (*Buteo albicaudatus*) *		T
Peregrine Falcon (*Falco peregrinus*)	Delisted	E
Cerulean Warbler *(Dendroica cerulea)*	SOC	
Black-capped Vireo (*Vireo atricapillus*)	E	E
Tropical Parula (*Parula pitiayumi*)	SOC	T
Loggerhead Shrike *(Lanius ludovicianus)*	SOC	
Plants		
Roughseed Sea-purslane *(Sesuvium trianthemoides)*	SOC	

There are several species from Table 9 known to occur or would have suitable habitat in or adjacent to the project area (Gulf shoreline and upland grasslands and wetlands). These species include the Texas horned lizard, Texas Indigo snake, all five species of sea turtle, Eastern Brown Pelican, Interior Least Tern, Black Tern, Piping Plover, Peregrine and Aplomado Falcons, White-tailed Hawk, and the Loggerhead Shrike.

The following table summarizes the impacts on the species or suitable habitat analyzed in this section. Impacts on species and suitable habitat under the Proposed Action range from

negligible to moderate. Existing impacts within the analysis area under both alternatives on species and suitable habitat range from no impact to moderate.

The NPS prepared and submitted a Biological Assessment to the U.S. Fish and Wildlife (USFWS). The USFWS concurred on July 22, 2002, with the NPS's determination that with the application of mitigation measures, the proposed action would "not likely to adversely affect" the species or suitable habitat evaluated in this section.

Table 10. Summary of Impacts by Species.

Species	Alternative A: No Action	Alternative B: Proposed Action
Texas Horned Lizard (*Phrynosoma cornutum*) Suitable Habitat	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on Texas horned lizard suitable habitat; however, continuing operation of two gas pipelines within the analysis area occupy areas of suitable habitat for this species, resulting in localized, short to long-term, negligible, adverse impacts. Cumulative impacts on suitable habitat from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses would result in localized, short to long-term, negligible to moderate, adverse impacts. No impairment to the Texas horned lizard suitable habitat would result from the implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be localized, short to long-term, negligible, adverse impacts on Texas horned lizard suitable habitat. Cumulative impacts would be similar to No Action, with localized, short to long-term, negligible to moderate, adverse impacts. No impairment to the Texas horned lizard suitable habitat would result from implementation of this alternative
Texas Indigo Snake (*Drymarchon corais erebennus*) * Suitable Habitat	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on Texas indigo snake suitable habitat. However, continuing operation of segments of two gas pipelines within the analysis area occupy areas of suitable habitat for this species, resulting in localized, short to long-term, negligible, adverse impacts. Cumulative impacts on suitable habitat from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses would result in short to long-term, negligible to moderate, adverse impacts. No impairment to the Texas indigo snake suitable habitat would result from the implementation of this alternative.	Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be localized, short to long-term, negligible, adverse impacts on Texas indigo snake suitable habitat. Cumulative impacts would be similar to No Action, with localized, short to long-term, negligible to moderate, adverse impacts. No impairment to the Texas indigo snake suitable habitat would result from implementation of this alternative

Species	Alternative A: No Action	Alternative B: Proposed Action
Kemp's Ridley Sea Turtle *(Lepidochelys kempii)* Loggerhead Sea Turtle (*Caretta caretta)* Green Sea Turtle (*Chelonia mydas)* Atlantic Hawksbill Sea Turtle (*Eretmochelys imbricata*) Leatherback Sea Turtle (*Dermochelys coriacea*)	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on sea turtles; however, existing vehicle use on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on sea turtles within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park in the Gulf of Mexico, and vehicle access along the Gulf beach, would result in short to long-term, negligible to minor, direct and indirect, adverse impacts localized along the Gulf beach; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on sea turtles, primarily along the Gulf shoreline. No impairment to the sea turtles would likely result from the implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's vehicle access above the "wet-line" along the 12.5-mile segment of Gulf beach and apply mitigations in Tables 4 & 5, in addition to existing visitor uses and vehicle access within this beach corridor, would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on sea turtles within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park in the Gulf of Mexico, and vehicle access along the Gulf beach, would result in short to long-term, negligible to minor, direct and indirect, adverse impacts localized along the Gulf beach; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on sea turtles, primarily along the Gulf shoreline. No impairment to the sea turtles would likely result from the
Eastern Brown Pelican (*Pelecanus occidentalis*)	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on the Eastern Brown Pelican; however, existing visitor uses and vehicle use on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on Eastern Brown Pelican within the analysis area. Cumulative impacts from visitor uses and vehicle access along the Gulf beach by the park, visitors, and operators of existing and future oil and gas operations in and adjacent to the park, are expected to result in localized, short to long-term, negligible to minor, direct, adverse impacts; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate, indirect, adverse impacts along the Gulf shoreline. No impairment to the Eastern Brown Pelican would result from implementation of this alternative. .	Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's vehicle access above the "wet-line" along the 12.5-mile segment of Gulf beach, in addition to existing visitor uses and vehicle access within this beach corridor, would result in localized, short to long-term negligible, direct, adverse impacts on Eastern Brown Pelican within the analysis area. Cumulative impacts would be similar to those described under Alternative A, No Action, with visitor uses and vehicle access along the Gulf beach resulting in localized, short to long-term, negligible to minor, direct, adverse impacts to Eastern Brown Pelican; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the Eastern Brown Pelican. No impairment to Eastern Brown Pelican would result from implementation of this alternative.
Interior Least Tern (*Sterna antillarum*), Black Tern (Chlidonias niger), and Piping Plover (*Charadrius melodous*)	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on the Interior Least Tern, Black Tern, and Piping Plover; however, existing visitor uses and vehicle access on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on these species within the analysis area. Cumulative	Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's vehicle access above the "wet-line" along the 12.5-mile segment of Gulf beach, in addition to existing vehicle access and visitor uses along this segment of beach would result in localized, short to long-term negligible, direct, adverse impacts on Interior Least and Black Terns and Piping Plovers.

Species	Alternative A: No Action	Alternative B: Proposed Action
	impacts from visitor uses and vehicle access along the Gulf beach by the park, visitors, and operators of existing and future oil and gas operations in and adjacent to the park, are expected to result in localized, short to long-term, negligible to minor, direct, adverse impacts; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate, indirect, adverse impacts. No impairment to the Interior Least Tern, Black Tern, and Piping Plover would result from implementation of this alternative	Cumulative impacts would be similar to those described under Alternative A, No Action, with vehicle use along the Gulf beach resulting in localized, short to long-term, negligible to minor, direct, adverse impacts on Interior Least and Black Terns and Piping Plovers; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the Interior Least and Black Terns and Piping Plovers. No impairment to Interior Least Tern, Black Tern, and Piping Plover would result from implementation of this alternative.
Peregrine Falcon (*Falco peregrinus*) and Northern Aplomado Falcon (*Falco femoralis septentrionalis)*	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on the Peregrine and Northern Aplomado Falcons; however, existing uses on the Gulf foredunes, result in localized, short-term, negligible, adverse impacts on the falcons. Cumulative impacts from park activities, visitor uses, and existing and future oil and gas operations in and adjacent to the park on the Gulf foredunes and wind tidal flats along the Laguna Madre shore, are expected to result in localized, short to long-term, negligible to minor, adverse impacts on the Peregrine and Northern Aplomado Falcons. No impairment to the Peregrine Falcon and Northern Aplomado Falcon would result from implementation of this alternative.	Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's proposed cut through the foredunes would result in the loss of Peregrine and Northern Aplomado Falcon habitat, with localized, short- to long-term, negligible, adverse impact on the falcons. However, the drill rig and production facilities, and BNP's planting of willow shrubs or trees around the production facility would provide additional perches for Peregrine and Northern Aplomado Falcons, resulting in localized and long-term, negligible, beneficial impacts, for the falcons. Cumulative impacts on Peregrine and Northern Aplomado Falcons throughout the park would be similar to those described under No Action, with localized, short to long-term, negligible to minor, adverse impacts resulting from park activities, visitor uses, and existing and future oil and gas operations in and adjacent to the park on the Gulf foredunes and wind tidal flats along the Laguna Madre shore. No impairment to the Peregrine Falcon and Northern Aplomado Falcon would result from implementation of this alternative.
White-tailed Hawk (*Buteo albicaudatus*) *	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on the White-tailed Hawk; and, there are no existing impacts within the analysis area. Cumulative impacts from park developments and operations, recreational activities, existing and future oil and gas operations that may be located within the park's grasslands and wind-tidal flats preferred by this species would result in localized, short to long-term, negligible, adverse impacts on the White-tailed Hawk. No impairment to the White- tailed	Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's proposed construction of an access road, well/production pad and flowline would directly impact 4.17 acres of grassland habitat preferred by the White-tailed Hawk, resulting in localized, short-term, minor adverse impacts on White-tailed Hawk until the site is satisfactorily reclaimed and habitat returned. However, the drill rig and production facilities, and BNP's planting of willow shrubs or trees around the production facility would

Species	Alternative A: No Action	Alternative B: Proposed Action
	Hawk would result from implementation of this alternative.	provide additional perches for White-tailed Hawks, resulting in localized and long-term, negligible, beneficial impacts. Cumulative impacts throughout the park White-tailed Hawk (*Buteo albicaudatus*) would be similar to those described under No Action, with park developments and operations, recreational activities, existing and future oil and gas operations that may be located within the park's grasslands and wind-tidal flats preferred by this species resulting in localized, short to long-term, negligible, adverse impacts on the White-tailed Hawk. No impairment to the White-tailed Hawk would result from implementation of this alternative.
Loggerhead Shrike *(Lanius ludovicianus)* and Neotropical Migratory Songbirds	Lemon/Lemon Seed Unit wells would not be drilled, resulting in no impacts on Loggerhead Shrikes and Neotropical migratory songbirds; however, existing operation of 2 gas pipelines would result in localized, short-term, negligible, adverse impacts on Loggerhead shrikes and Neotropical migratory songbirds within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, and park developments and operations are expected to result in localized short to long-term, negligible to minor adverse impacts, near developments in grasslands preferred by these species throughout the park. Leaks and spills from oil and gas operations would be localized, with minor to major, adverse impacts on grasslands; however, with the application of mitigation measures and prompt response in the event of a spill, impacts would be reduced to negligible to moderate, adverse impacts. No impairment to Loggerhead shrikes and Neotropical migratory songbirds would result from implementation of this alternative.	Lemon/Lemon Seed Unit wells would not be drilled; however, existing operation of 2 gas pipelines would result in localized, short to long-term, negligible, adverse impacts on Loggerhead shrikes and Neotropical migratory songbirds within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, and park developments and operations are expected to result in localized, short to long-term, negligible to minor adverse impacts, near developments in grasslands preferred by these species throughout the park. Leaks and spills from oil and gas operations would be localized, with minor to major, adverse impacts on grasslands; however, with the application of mitigation measures and prompt response in the event of a spill, impacts would be reduced to negligible to moderate, adverse impacts. No impairment to Loggerhead shrikes and Neotropical migratory songbirds would result from implementation of this alternative.

Texas Horned Lizard

Affected Environment

The Texas horned lizard (*Phrynosoma cornutum*) is considered a species of concern at the federal level and listed as threatened by the state.

The distribution of the Texas horned lizard ranges from Kansas down to Louisiana through Texas, Arizona, and into northern Mexico (Bockstanz, http://www.zo.utexas.edu/research/txherps/lizards/phrynosoma.cornutum.html). In Texas, it was originally seen throughout the state, but numbers dropped dramatically in the 1950' s-60 due to the pet

trade, habitat loss, and introduction of the exotic fire ant. As of 1998, Texas horned lizards are only seen in the western third of the state. It is generally found in deserts, temperate grasslands, prairies, and scrubland, in sandy, open areas with little vegetation, often inhabiting abandoned animal burrows or simply covering itself with loose sand. (Todd, UMMZ) These lizards are often found in close proximity to harvester ant (*Pogonomyrmex* spp) mounds, which are its main source of prey, but it will also forage on grasshoppers, beetles, and isopods. In order to obtain enough energy, adult Texas Horned Lizards must forage from several Harvester ant colonies so their daily feeding activities coincide with the times of highest ant activity.

The Texas horned lizard does not migrate but will hibernate from late summer to late spring. Therefore, it is only seen on warm days in late spring and summer. Breeding begins once they emerge from hibernation usually in late April and continuing into July. The age of reproductive maturity is not known, however they are full-grown adults at three years of age.

Texas horned lizards have been found on Padre Island north of the park in the mid-1980's, but have not been documented within the park. A herpetological survey is currently underway to document species occurrence and presence within the park. Information from this inventory will be used to develop management actions, increase park knowledge of those species documented, and help to formulate future protection measures. No critical habitat has been designated for this species.

During surveys conducted by park biologists in August, September, and December 2001, this species was not found within the analysis area for the proposed Lemon/Lemon Seed Unit wells; therefore, this impact analysis focuses on the potential for impacts on suitable habitat for this species.

Impacts of Alternative A, No Action, on Texas Horned Lizard

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no impacts on the Texas horned lizard suitable habitat.

Impacts on Texas horned lizard suitable habitat within the analysis area would continue as the result of the continuing operation of 2 gas pipelines, resulting in localized, negligible to minor, adverse impacts.

Cumulative Impacts

Some of the 12 existing oil and gas operations and flowlines throughout the park are located within suitable habitat for this species. If the Texas horned lizard had been occupying the park prior to the park's establishment, when many of the existing oil and gas operations were developed, displacement of this species may have occurred from these operations.

Under Alternative A, No Action, cumulative impacts on Texas horned lizard suitable habitat could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres, and spills from oil and gas activities located adjacent to the park, including tanker traffic in the Gulf of Mexico. As some oil and gas operations are developed in the park, others would be plugged and abandoned, and reclaimed; therefore, impacts would be distributed over time. Park activities that could contribute to impacting suitable habitat include prescribed fires, routine maintenance of park roads, and park and visitor vehicle use, and recreational activities. In the future, biological surveys would be performed prior to selecting a proposed oil and gas development site or conducting park operations; thereby identifying whether the species is in the proposed project vicinity or if suitable habitat exists so that avoidance and minimization of impacts can be planned. As a result, suitable habitat could be utilized for developments and operations, resulting in short to long-term, negligible to moderate, adverse impacts on suitable habitat, localized at developments and activities throughout the park.

Conclusion
Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on Texas horned lizard suitable habitat; however, continuing operation of two gas pipelines within the analysis area occupy areas of suitable habitat for this species, resulting in localized, short to long-term, negligible, adverse impacts. Cumulative impacts on suitable habitat from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses would result in short to long-term, negligible to moderate, adverse impacts. No impairment to the Texas horned lizard suitable habitat would result from the implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Texas Horned Lizard
Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, and if completed, would result in short-term loss of suitable habitat for Texas horned lizard on up to 9 acres, and the long-term occupancy of 2.16 acres. Construction of the dune cut/access road, well/production pad, and flowline would occur in areas with Texas horned lizard suitable habitat, resulting in localized, short to long-term, negligible, adverse impacts.

Cumulative Impacts
Under Alternative B, Proposed Action, cumulative impacts on Texas horned lizard suitable habitat throughout the park would be similar to those described under No Action, with localized, short to long-term, negligible to moderate, adverse impacts.

Conclusion
Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be localized, short to long-term, negligible, adverse impacts on Texas horned lizard suitable habitat. Cumulative impacts would be similar to No Action, with localized, short to long-term, negligible to moderate, adverse impacts. No impairment to the Texas horned lizard suitable habitat would result from implementation of this alternative.

Texas Indigo Snake

Affected Environment
The Texas indigo snake (*Drymarchon corais erebennus*) is not federally listed, but is state listed as threatened.

This species ranges from southern Texas southward along the Gulf coast into Veracruz and Hidalgo, Mexico generally inhabiting burrows in moist riparian breaks in the thorn brush woodlands and coastal mesquite savannah. It may also be seen in grassy plains or on coastal sandhill habitats (University of Texas, Http://www.zo.utexas.edu/research/txherps/snakes/drymarchon.corais.html).

Unlike many other snakes, indigo snakes are primarily diurnal predators. The Texas indigo snake feeds on frogs, turtles, small mammals, birds, and other snake species. This species mates between November and February and lays eggs between April and May. Indigo snakes also spend the first two years of life in seclusion (CCWild, Http://ccwild.cbi.tamucc.edu/naturalhistory/texas_indigo_snake/tisacc.htm).

Padre Island National Seashore has grassy plains and coastal sandhill habitats that may be suitable for this species. Only one known specimen has been documented from the park and was curated in the mid-1980's by Texas A&M University-Kingsville (Donna Shaver-Miller PhD, personal communication). No other individuals of this species have been documented since. A herpetological survey is currently underway to document species within the park. Information from this inventory will be used to develop management actions, increase park knowledge of those species documented, and help to formulate future protection measures. No critical habitat has been designated for this species.

During surveys conducted by park biologists in August, September, and December 2001, this species was not found within the analysis area for the proposed Lemon/Lemon Seed Unit wells; therefore, this impact analysis focuses on the potential for impacts on suitable habitat for this species.

Impacts of Alternative A, No Action, on Texas Indigo Snake

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on Texas indigo snake suitable habitat.

Impacts on Texas indigo snake suitable habitat within the analysis area would continue as the result of the continuing operation of segments of 2 gas pipelines, resulting in localized, negligible to minor, adverse impacts. Existing visitor uses and vehicle traffic along the 12.5-mile segment of Gulf beach would not impact Texas indigo snake suitable habitat.

Cumulative Impacts

Some of the 12 existing oil and gas operations and flowlines throughout the park are located within suitable habitat for this species. If the Texas indigo snake had been occupying the park prior to the park's establishment, when many of the existing oil and gas operations were developed, displacement of this species may have occurred from these operations.

Under Alternative A, No Action, cumulative impacts on Texas indigo snake suitable habitat could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres, and spills from oil and gas activities located adjacent to the park, including tanker traffic in the Gulf of Mexico. As some oil and gas operations are developed in the park, others would be plugged and abandoned, and reclaimed; therefore, impacts would be distributed over time. Park activities that could contribute to impacting suitable habitat include prescribed fires, routine maintenance of park roads, and park and visitor vehicle use, and recreational activities. In the future, biological surveys would be performed prior to selecting a proposed oil and gas development site or conducting park operations; thereby identifying whether the species is in the proposed project vicinity or if suitable habitat exists so that avoidance and minimization of impacts can be planned. As a result, suitable habitat could be utilized for developments and operations, resulting in short to long-term, negligible to moderate, adverse impacts on suitable habitat, localized at developments and activities throughout the park.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on Texas indigo snake suitable habitat. However, continuing operation of segments of two gas pipelines within the analysis area occupy areas of suitable habitat for this species, resulting in localized, short to long-term, negligible, adverse impacts. Cumulative impacts on suitable habitat from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses would result in short to long-term, negligible to moderate, adverse impacts. No impairment to the Texas indigo snake suitable habitat would result from the implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Texas Indigo Snake

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled, and if completed, would result in the short-term loss of suitable habitat for Texas indigo snake on up to 9 acres, and the long-term occupancy of 2.16 acres. Construction of the dune cut/access road, well/production pad, and flowline would occur in areas with Texas indigo snake suitable habitat, resulting in localized, short to long-term, negligible, adverse impacts.

Cumulative Impacts
Under Alternative B, Proposed Action, cumulative impacts on Texas indigo snake suitable habitat throughout the park would be similar to those described under No Action, with localized, short to long-term, negligible to moderate, adverse impacts.

Conclusion
Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells were placed into production, there would be localized, short to long-term, negligible, adverse impacts on Texas indigo snake suitable habitat. Cumulative impacts would be similar to No Action, with localized, short to long-term, negligible to moderate, adverse impacts. No impairment to the Texas indigo snake suitable habitat would result from implementation of this alternative.

Sea Turtles
Including Kemp's Ridley Turtle, Loggerhead Sea Turtle, Green Sea Turtle, Atlantic Hawksbill Sea Turtle, and Leatherback Sea Turtle

Affected Environment
The Kemp's ridley sea turtle (*Lepidochelys kempii)* is federally listed as an endangered species. It is the smallest of the sea turtles, and adults reach maturity at about 10-15 years of age. Kemp's ridley turtles nest mostly during the daytime, often in groups called "arribadas". An individual Kemp's ridley may nest as many as three times a season (USFWS and NMFS, 1992), with an average of 2.5 clutches per season. Clutch size averages around 100 eggs. Hatchlings emerge after about 50 days of incubation and hatchling emergence occurs during the night or day. Kemp's ridleys are found in the Gulf of Mexico and Atlantic Ocean and some adjoining estuarine areas. Nesting occurs primarily in the vicinity of Rancho Nuevo, Tamaulipas, Mexico. Each year, some nests are also found at scattered locations between the Texas coastline and Veracruz, Mexico. Very rarely, Kemp's ridleys nest at other locations in the U.S. outside of Texas. More Kemp's ridley nests are consistently found in south Texas, including at Padre Island National Seashore, than at any other location in the U.S.

Historic nesting frequency of this sea turtle on the south Texas coast is poorly known and only six Kemp's ridley turtles were documented there prior to 1979 (Shaver and Caillouet, 1998). A total of 100 Kemp's ridley nests have been documented along the Texas coast between 1979 and 2001. Kemp's ridley is a native nester at Padre Island National Seashore (Hildebrand, 1963, 1981, 1983; Shaver, 1998a; Shaver and Caillouet, 1998). Since 1978, an international, experimental project involving the National Park Service at Padre Island National Seashore, USFWS, NMFS/NOAA, etc., has been on-going to establish a secondary nesting colony of Kemp's ridley turtles at Padre Island National Seashore.

Eggs were collected in Mexico, transported to Padre Island National Seashore, and placed into an NPS incubation facility in the park. Hatchlings were released on the beach, allowed to enter the surf and were recaptured. They were then shipped to the National Marine Fisheries Service Laboratory in Galveston, Texas, for 9-11 months of rearing in captivity (head-starting) and the yearling turtles were subsequently released into the Gulf of Mexico. It was hoped that these procedures would cause the turtles to be imprinted to Padre Island National Seashore and return there to nest when they were sexually mature. Since 1996, some turtles from this project have been documented returning to south Texas and Padre Island National Seashore to lay eggs (Shaver, 1997, 1998a, 1999a, 1999b; Shaver and Caillouet, 1998).

In 1986, an NPS and USFWS program was initiated to detect, monitor, and protect sea turtle nests at Padre Island National Seashore as part of the Kemp's Ridley Recovery Plan, and this on-going program has expanded since that time. Detection involves patrols to look for nesting activity, public education, and investigation of reports from patrollers, beach workers, and the public. Patrollers (U.S. Geological Survey (USGS) and NPS staff members and volunteers) use ATVs to search the park and adjacent State beaches to the north of the park for sea turtle tracks and nesting Kemp's ridley turtles each day, from

April through mid–July. From 1979-2001, 45 Kemp's ridley nests were confirmed in the park, but additional nests were likely missed, especially when patrols were not conducted or were less comprehensive. The 45 Kemp's ridley nests were distributed along the entire Gulf beachfront length of Padre Island National Seashore.

The date of the nesting season varies slightly each year. In Mexico, Kemp's ridley nests have been recorded as early as March and as late as August. The 45 nests documented at Padre Island National Seashore from 1979-2001 were found during the months of April, May, and June, the months that beach surveys were conducted most intensively. Nesting may also occur at the national seashore during other months, but this has not been confirmed. A dead Kemp's ridley turtle containing eggs was found washed ashore at the national seashore during July, and Kemp's ridley tracks have been documented in July as well.

At the national seashore, some Kemp's ridley turtles nest every year and many are found stranded (washed ashore, alive or dead) (Shaver, 1997, 1998a, 1998b, 1999a, 1999b; Shaver and Caillouet, 1998). Additionally, Kemp's ridley turtles sometimes inhabit nearshore Gulf of Mexico waters at Padre Island National Seashore for foraging or migration.

No critical habitat has been designated for this species. An existing Recovery Plan for the Kemp's ridley defines specific park tasks in the recovery efforts, which are being conducted (patrols, monitoring, habitat management). This is the only federally listed species in the park with Recovery Plan responsibilities assigned to this park.

As mentioned above, an NPS and USFWS program was initiated in 1986 to detect, study, and protect Kemp's ridley turtle nests at Padre Island National Seashore and this on-going program has expanded to include the four other species of sea turtle. Detection for the following four species of sea turtles involves patrols to look for nesting activity, public education, and investigation of reports from patrollers, beach workers, in-park contractors, and the public. Patrollers (NPS and USGS staff members and volunteers) use ATVs to search Padre Island National Seashore and the adjacent northern area of State beaches for sea turtle tracks and nesting turtles. Each day, from April through mid-July, they repeatedly patrol the entire Gulf beachfront of the national seashore during daylight hours. The patrol season and procedures are designed primarily to detect nesting by Kemp's ridley turtles, but the other sea turtle nests have also been documented and recovered. Daily runs to the Port Mansfield Channel and back are made from mid-July through August to look for signs of nesting activity, but these patrols are subject to funding and staff availability, and reports from the public.

No critical habitat has been designated in the park for any of the following four sea turtle species. There is no specific Recovery Plan task assigned to the park for the remaining four species of sea turtle occurring at the national seashore, however park and USGS staff and volunteers conduct, support and assist in the daily patrols for this species to protect, document, and monitor nesting occurrence.

The loggerhead sea turtle (*Caretta caretta)* is federally listed as a threatened species. It occurs in temperate and tropical waters of both hemispheres. The species inhabits the continental shelves and estuarine environments along the margins of the Atlantic, Pacific, and Indian oceans. Historic nesting frequency on the Texas coast is poorly known. Hildebrand (1981) suggested that nesting likely occurred within the last 300 years, but the earliest loggerhead nest that he was able to confirm for the Texas coast was found in 1977.

Adult loggerhead turtles reach maturity in 25 to 30 years. Loggerheads are nocturnal nesters, although some daytime nesting occurs. They nest from one to seven times within a nesting season (average of approximately 4.1 clutches); clutch size averages 100-125 eggs along the southeastern U.S. coast (NMFS and USFWS, 1991b). Hatchling emergence typically occurs at night. In the Gulf of Mexico, there are

distinct nesting populations on the coast of the Florida panhandle and the Yucatan Peninsula. Scattered nests can be found occasionally along other areas of the U.S. Gulf coast including the Chandeleur Islands, Louisiana, in the north and to the U.S./Mexico border in the south.

At Padre Island National Seashore, loggerhead turtles sometimes inhabit nearshore Gulf of Mexico waters for foraging or migration. Additionally, a few occasionally nest at the national seashore and many more are found stranded there (Shaver, 1998b, 1999b). From 1979-2001, 19 loggerhead nests were documented at Padre Island National Seashore (at various locations scattered along the coast of the national seashore), but additional nests were likely missed, especially when patrols are reduced and less comprehensive after the mid-July Kemp's ridley patrol season ends. Loggerhead nests are found on North Padre Island from mid-May through early August, although nesting has been documented in the southeastern U.S. from late-April through early September.

The green sea turtle (*Chelonia mydas)* is federally listed as threatened in all of its range except the waters of Florida and the Pacific coast of Mexico, where it is endangered. It is circumglobal in tropical and sub-tropical waters. A green turtle fishery, operating almost exclusively within inshore waters (bays, estuaries, passes), began in Texas in the mid-1800's. By the early 1900's, the catch declined to such an extent that the turtle fishing and processing industry collapsed (Hildebrand, 1981). Although historic nesting by green turtles on the Texas coast is suspected, the first confirmed nest was not documented there until 1987 (Shaver, 2000).

Adult green turtles reach maturity at 30 to 50 years of age. Female green turtles nest at night. From one to seven clutches are deposited within a breeding season (the average number is usually two to three clutches) (NMFS and USFWS, 1991a). Average clutch size is usually 110-115 eggs. Hatchling emergence occurs at night. In this region, nesting sites include southern Florida and scattered locations in Mexico, although nesting occasionally occurs in south Texas.

At Padre Island National Seashore, juvenile green sea turtles inhabit waters of the nearshore Gulf of Mexico, the Laguna Madre, and the Mansfield Channel. Additionally, a few green turtles occasionally nest within the national seashore and many are found stranded there each year (Shaver, 1989, 1998b, 2000). From 1979-2001, seven green turtle nests were documented at the park, all in roughly the southern half of the park (Shaver, 1989, 2000). The seven green turtle nests were found during June and July, although nesting occurs from May through September in this region.

The hawksbill sea turtle (*Eretmochelys imbricata)* is federally listed as endangered. It occurs in tropical and subtropical seas of the Atlantic, Pacific, and Indian oceans. Young hawksbills occur with some regularity in Texas waters, since northern currents carry them from nesting beaches in Mexico (Hildebrand, 1981). Historic nesting by this species on the Texas coast is unknown. Female hawksbill turtles nest mostly during the night, but rare daytime nesting is known. They nest an average of 4.5 times per season (up to 12 clutches); clutch size averages approximately 140 eggs (NMFS and USFWS, 1993). Hatchling emergence occurs at night. Hawksbills nest on scattered islands and beaches between 25 degrees North and South latitude including beaches in southeastern Florida and the states of Campeche and Yucatan in Mexico. Nesting does not regularly occur on the Texas coast.

At Padre Island National Seashore, young hawksbills occasionally inhabit waters of the nearshore Gulf of Mexico and Mansfield Channel. Additionally, many are found stranded in the park each year, but nesting very rarely occurs here (Shaver, 1998b, 1999b).

The leatherback sea turtle (*Dermochelys coriacea)* is federally listed as an endangered species. It ranges throughout the tropical waters of the Atlantic, Pacific, and Indian oceans, but has also been recorded from the North Atlantic, North Pacific, South Atlantic, and South Pacific. The leatherback is the largest

and most pelagic sea turtle species and is normally found in the deeper waters of the Gulf of Mexico where it may undertake extensive migrations.

Nesting occurs primarily at night and diurnal nesting occurs only occasionally. They nest five to seven times per year, with an average clutch size of 110-116 eggs (NMFS and USFWS, 1992). Hatchling emergence typically occurs at night. Leatherback nesting grounds are distributed circumglobally. Leatherbacks infrequently strand at Padre Island National Seashore (Shaver, 1998b).

Hildebrand (1963, 1981) reported leatherback nesting at Little Shell on Padre Island National Seashore, including one documented nesting in 1928 and at least one observed nesting in the mid 1930's. No leatherback nests have been confirmed on the Texas coast since that time.

No leatherback nests have been recorded within the park during recent years, although it is possible that a few were missed, especially when patrols were not conducted or were less comprehensive. In the U.S. and Caribbean, nesting begins in February and continues through July.

Impacts of Alternative A, No Action, on Sea Turtles

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on sea turtles. However, impacts on sea turtles in the analysis area would continue along the 12.5-mile segment of Gulf beach as the result of park, commercial, and visitor vehicle use along the 12.5-mile segment of Gulf beach; routine park operations; and recreational activities.

Park staff, 12 oil and gas operators, and an estimated 527,800 visitors annually use the 12.5-mile segment of Gulf beach for vehicle access. Approximately 95,000 visitors (18% of those using the Gulf beach) travel between the 6 to 12.5-mile marker, with some going below this point. Park staff conducts routine park operations along the beach. Vehicle traffic associated with oil and gas operations normally uses 4-wheel drive trucks, however, a large vehicle like a pumper-truck, would occasionally travel the beach corridor. These trips include up to three pickup sized trucks that run down, daily, to the sites near the 3-mile and 6-mile markers. Twice monthly, a larger truck runs to the south Sprint facility near the 6-mile marker to remove gas by-products or "condensate" from a holding tank. Additional traffic is limited to emergency or periodic, routine trips for maintenance or inspections of flowlines and facilities.

There may be times when turtle eggs, nesting turtles, hatchlings, and stranded turtles could be directly vulnerable to vehicle traffic on the 12.5-mile segment of Gulf beach. Operation of all vehicles, including oil and gas heavy equipment, on the beach can crush nesting turtles, stranded turtles, hatchlings, and some eggs, producing an immediate, lethal impact and may cause changes in the structure or density of beach sand, indirectly affecting nesting and incubation habitat (Mann, 1977; NMFS and USFWS, 1991a, 1991b, 1992-1993; Ernest et al., 1998). Vehicles could also remove sea turtle tracks, making it impossible for the USGS and NPS to find a nest for investigation and protection. Vibrations and noise caused by moving vehicles on the beach could frighten nesting turtles, causing them to abandon their nesting attempt (false crawl) (NMFS and USFWS 1991a, 1991b, 1992; Ernest et al., 1998). Current scientific data is not available for the Kemp's ridley sea turtle, however several mitigation measures and specific conditions of approval are implemented to reduce the potential risk to sea turtles (See Tables 4 and Table 5).

Turtle hatchlings and smaller stranded sea turtles could become trapped in the ruts for short or long periods of time causing them to weaken, invert, or succumb due to predation, disorientation, crushing, or dehydration (Hosier et al., 1981; Fletemeyer, 1996; Ernest et al., 1998). According to Dr. Donna Shaver, sea turtle expert and Station Leader of the USGS Padre Island Field Research Station, the depth and slope of the ruts will influence the amount of impact (personal observation). Deeper and more steeply sloped ruts will cause the greatest impact. Hosier et al. (1981) found that 10-15 cm deep tracks may serve as a

significant impediment to loggerhead hatchlings. The smaller the turtle the more that it will be impacted by rut size.

A study in Florida on a nourished beach found that vehicles can also compact the sand, making it more difficult or impossible for nesting turtles to excavate a nest cavity leading to increased false crawls and nests with shallow egg chambers (Fletemeyer, 1996). Compaction could also make it more difficult for hatchlings to emerge from an undetected nest. Data on the level of compaction necessary to inhibit or prevent nesting, or inhibit or prevent hatchling emergence is not available. There is no documented evidence that suggests that the level of traffic in this sandy environment, of Padre Island National Seashore, is a serious concern or noticeable to the sea turtle. In fact, 2002 nesting levels appear to contradict this assumption.

Large vehicles associated with oil and gas operations can produce deeper ruts in the sand, which could affect movements of nesting females and hatchlings. To reduce direct impacts that can occur from rutting, the park requires operators to mitigate the impacts by backfilling ruts. However, since backfilling ruts and leveling of the beach surface may cause indirect and direct impacts (including compaction of sand, covering or removal of sea turtle tracks, and crushing of nests and turtles), existing methods used to fill ruts will be reviewed and monitored on a periodic basis by the NPS, USGS and USFWS. There is no data to show that sand in these backfilled areas is compacted enough to inhibit nesting.

Vibrations could also harm incubating eggs. It is difficult to assess these areas as scientific data is lacking to fully understand the level of impact on sea turtles from traffic vibrations or noise. From observations of traffic and wildlife interactions, there is no question that seeing the vehicle at the water's edge would cause the sea turtle to move back into the water. One would expect this type of reaction of wildlife to man's presence (on foot or in a vehicle). The effect of vibrations from people or from vehicles on the beach during a nesting event does not show a strong negative correlation to date. People driving on the beach often spot nesting sea turtles and can often approach them without disturbing the nesting activity, once laying the eggs begins.

Vehicle and operation lights behind the dunes can cause direct impacts on nesting turtles leading to false crawls and can disorient hatchlings so that they crawl in the wrong direction rather than enter the sea, thereby becoming vulnerable to crushing, predation, and dehydration (NMFS and USFWS 1991a, 1991b; Fletemeyer, 1996). Since oil and gas nighttime transportation of heavy equipment is not permitted during the sea turtle nesting season, the vehicular light issue is confined to four-wheel drive trucks associated with 2-wheel and 4-wheel drive vehicles used by the visitors. It is understood that there are over 500,000 trips down the analysis area of 12.5 miles of Gulf beach each year by park visitors, many of which operate at night. Lights from operations behind the dunes could impact this species if the lights are visible from the beach; however, there are no current operations within proximity to the beach that have night lighting. Nesting Kemp's ridley turtles, which are primarily daytime nesters and Kemp's ridley hatchlings, which emerge generally in the daytime, will most likely not be affected. Conditions of approval and mitigation measures applied to the existing 12 approved oil and gas operations would reduce the potential impact associated with lighting.
To reduce and or eliminate the impact of light pollution on the sea turtle (and to the visitor) the following measures of night sky protection are currently being applied as mitigation measures by the park: 1) use of directional and shielded lighting on the drilling rigs and no lighting of production facilities; 2) Use of a required setback of 500 feet from the dunes and other light-sensitive areas; and 3) placing night driving restrictions on operators of heavy equipment and trucks during the sea turtle nesting and hatchling emergence period. These steps are expected to be adequate to prevent any light pollution impact, given current scientific data.

So this leaves those species of sea turtle that nest primarily at night (green, loggerhead and hawksbill) likely to be the most affected by night driving and associated lighting. Based on documented nesting, the

total number of these three species of sea turtle nesting at Padre Island National Seashore, within the analysis area, would be less than three over a 15-year span. The risk of loss to nesting turtles of these species is therefore very small. This would also apply to those hatchlings that emerge at night or early in the morning from the few in-situ nests possibly missed by the daily patrols conducted by the NPS and USGS staff and volunteers.

Currently the USGS and NPS remove all sea turtle eggs that are located from the beach and transfer them to the incubation facility at Padre Island National Seashore. Hatching success is elevated substantially for eggs that are transferred to this facility rather than left on the beach in-situ. Some nests missed by the patrol and monitoring effort may go undetected and unprotected from predation, insect infestation, tidal inundation, and crushing. Additionally, some nesting and stranded turtles are not immediately found and protected by the NPS.

There has been vehicle traffic, both from visitors and heavy equipment operators, on the Gulf of Mexico shoreline for over 20 years with no documented case of a crushing of a nesting sea turtle within the park. The risk to a sea turtle in the analysis area is low when looking at past nesting activity. The average number of nests per year over a five-year span, for the first 15 miles of south beach, is approximately three. In 2002, one of the highest nesting activity years since the beginning of the program (1986), there were six nests found within the analysis area. Current nesting activity does not seem to indicate compaction from vehicles, either by visitors or from the existing 12 oil and gas operators, is causing a negative affect.

Nesting activity for 2002 seem to support the idea that existing traffic levels (approximately 500,000 vehicles annually) do not currently have a measurable effect on nesting sea turtles. Looking at nesting data collected over the past 20 years for the action area, and given that most nests are found and removed from the beach by NPS and USGS staff, the potential impact of vibrations to eggs and crushing of nests would appear to be minimal. The chance that hatchlings could be killed by vehicle use at night along the stretch of beach within the action area of the project is real, but minimal.

There is the very small chance that the four sea turtle species (loggerhead, green, hawksbill, or leatherback) would be directly impacted by vehicle use on the beach, including the crushing of stranded turtles and undiscovered nests or hatchlings. Impacts that are more likely to occur would be indirect impacts, including noise and vibration to nests or hatchlings; and direct impacts from night- time lighting, from vehicles and project area lighting that may cause changes in sea turtle behavior can affect these species. All of the existing 12 Oil and Gas Operations located throughout the park are located a sufficient distance behind the foredunes so that any night lighting would not shine onto the beach. The NPS conservation efforts related to these sea turtles are conducted to promote and enhance their recovery. Please refer to the measures employed for use in the Kemp's ridley sea turtle effort as measures used to assist this and other species of sea turtle.

Existing vehicle access along the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on sea turtles within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on sea turtles would result primarily from vehicle access along the Gulf beach from the continuing operation of 12 nonfederal oil and gas operations within the park, future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario, park staff, and visitors. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Leaks and spills from oil and gas operations could be serious, with negligible moderate, impacts on sea turtles. Spills from oil and gas operations in the Gulf of Mexico, including tanker traffic, could be

transported by water onto the Gulf beach shoreline, causing widespread impacts and resulting in long-term clean-up and remediation. Mitigation measures are expected to substantially reduce the impacts.

The risk of impacting one of the four species of sea turtle (loggerhead, green, hawksbill, and leatherback), however, is reduced to a much greater degree because of the limited possibility of encountering one on the seashore. This is particularly true within the existing areas of oil and gas operation. As night driving by all companies is restricted during the sea turtle nesting season, the chance of injuring an adult is remote, especially for the green, hawksbill and leatherback sea turtles. The greatest potential for a direct, adverse impact would occur from vehicle traffic crushing an undocumented nest or emerging hatchlings, and causing hatchling mortality due to vehicle rutting.

Cumulative impacts on sea turtles throughout the park are expected to result in short to long-term, negligible to minor, direct and indirect, adverse impacts localized along the Gulf beach; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on sea turtles, primarily along the Gulf shoreline.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on sea turtles; however, existing vehicle use on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct and indirect, adverse impacts on sea turtles within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park in the Gulf of Mexico, and vehicle access along the Gulf beach, would result in short to long-term, negligible to minor, direct and indirect, adverse impacts localized along the Gulf beach; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on sea turtles, primarily along the Gulf shoreline. No impairment to the sea turtles would likely result from the implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Sea Turtles

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced.

Existing impacts on sea turtles within the analysis area would be similar to Alternative A, No Action, with localized, short to long-term, direct and indirect, negligible to minor, adverse impacts associated with vehicle use along the 12.5-mile segment of Gulf beach.

BNP would use the 12.5-mile segment of Gulf beach to access its proposed wellpad located approximately 900 feet behind the foredunes. BNP would be required to confine vehicle use above the "wet-line" and apply other mitigation measures specifically designed to avoid or minimize impacts on sea turtles (see Table 4 for mitigation measures included in BNP's plan of operations, and Table 5 for mitigation measures applied by the NPS as conditions of approval). As described above under No Action, vehicles could compact and rut beach sands. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. Truck traffic associated with drilling the Lemon/Lemon Seed Unit wells would range from a low of 4 to a maximum of 20 truck trips per day, with 13 trips being the project average over the busiest four months. Once drilling of the two wells are completed, the number of large vehicles used in long-term production operations would substantially decrease.

There has been vehicle traffic, both from visitors and heavy equipment operators, on the Gulf beach for over 20 years with no documented case of a crushing of a nesting sea turtle within the park. The risk to a sea turtle in the analysis area is low when looking at past nesting activity. The average number of Kemp's sea turtle nests per year over a five-year span, for the first 15 miles of south beach, is approximately three. In 2002, one of the highest nesting activity years since the beginning of the program (1986), there were

six nests found within the analysis area. Current nesting activity does not seem to indicate compaction from vehicles, either by the public or from the operator, is causing a negative affect.

Drilling of the Lemon/Lemon Seed Unit wells would occur outside of the Kemp's ridley nesting season; therefore, direct impacts would be few to none as a result of the drilling phase, mostly occurring to any unfound nests that produce hatchlings. Therefore, the primary impact would be obstacles to emerging hatchlings from unfilled ruts, from vehicle traffic, and the possibility of crushing. With daytime driving only, and the requirement for trained staff to precede equipment and truck traffic down the beach, the potential impact would be reduced.

The four species of sea turtles (loggerhead, green, hawksbill, and leatherback) nest primarily at night and hatchling emergence is usually at night or very early in the morning. As the number of nests in the park and within the project area are historically few, the impact on these species is expected to be less than for Ridley sea turtles. Therefore, the risk of impacting one of these species of sea turtles is greatly reduced because of the limited possibility of encountering one on the seashore. As night driving by BNP would be restricted during the sea turtle nesting season, the chance of injuring an adult is remote, especially for the green, hawksbill and leatherback sea turtles. The greatest potential for a direct, adverse impact is to the loggerhead and any remaining undiscovered sea turtle nests. The only real potential for impacts is from vehicle traffic resulting in the crushing of undocumented nests or emerging hatchlings, and causing hatchling mortality due to vehicle tracks and rutting. Since the number of trips per day by oil and gas operators driving large trucks along the Gulf beach is greater than four truck trips per day, and given that the typical use by existing operators is restricted to the daylight hours, this alternative has the higher potential for negative impacts on these four species of sea turtles. Since seasonal visitor use of the beach (pick-up trucks and recreational vehicles/motor homes) increases to its highest point at this time of year, this alternative is less likely to cause direct impacts to the turtle. There is still a risk of injury or mortality from BNP truck traffic; however, it would be minimal in the near and long-term.

Vehicle access along the 12.5-mile segment of Gulf beach would result in localized, short to long-term, direct and indirect, negligible to minor, adverse impacts on sea turtles. Mitigation measures and monitoring of the proposed project would reduce the potential impact on sea turtles, and help to ensure that the project is not likely to adversely affect these species.

Construction of the dune cut/access road, well/production pad, and flowline would have no impact on sea turtles.

Cumulative Impact

Cumulative impacts on sea turtles throughout the park would be similar to those described under No Action, with short to long-term, negligible to minor, direct and indirect, adverse impacts localized along the Gulf beach; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on sea turtles, primarily along the Gulf shoreline.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. If the wells are placed into production, vehicle access along the 12.5-mile segment of Gulf beach; in addition to existing vehicle access along the beach would result in localized, short to long-term, direct and indirect, negligible to minor, adverse impacts on sea turtles within the analysis area. Cumulative impacts would be similar to those described under No Action, with short to long-term, negligible to minor, direct and indirect, adverse impacts localized along the Gulf beach; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on sea turtles, primarily along the Gulf shoreline. No impairment to sea turtles would result from implementation of this alternative.

Eastern Brown Pelican

Affected Environment

Eastern Brown Pelicans *(Pelecanus occidentalis)* are federally and state listed as endangered. This bird's population fell to less than 100 birds between 1967 and 1974 (TPWD, http://tpwd.state.tx.us/nature/endang/birds/bpelican.htm). It is a coastal inhabitant whose range includes the southern United States and northern South America - from North Carolina to Venezuela and Trinidad in the Atlantic and from British Columbia to Chile on the Pacific coast.

This species is found along salt bays, beaches, and oceans. It is generally found near shallow waters adjacent to the coast, especially on sheltered bays. Occasionally Brown Pelicans are seen well out to sea. Brown Pelicans feed almost entirely on fish including menhaden, smelt, and anchovies but can occasionally feed on crustaceans.

Brown pelicans nest in colonies on isolated islands where they are safe from predators. These islands may be either bare and rocky or covered with small mangroves, shrubs, or other trees. Stray individuals may appear on freshwater lakes inland. Nests may be a simple scrape, a heap of debris with a depression on the top, or a large stick nest located in a tree. Breeding season generally begins in early March and lasting until August. After the breeding season, flocks move north along both Atlantic and Pacific coasts. These birds return southward to warmer waters by winter. Small numbers of immatures regularly wander inland in summer, especially in the Southwest (Peterson Multimedia Guides, http://www.petersononline.com/birds/month/brpe/index.html).

Eastern Brown Pelicans occur in the park year-round along both the Gulf and Laguna Madre sides of Padre Island. Individuals utilize the park for resting and foraging, and are typically found in the nearshore and washover habitats. Some individuals migrate south during the winter months and return during the breeding season. Brown Pelicans forage along the Gulf beach shoreline searching for fish near the surface of the water.

In 1993, Dr. Allan Chaney recorded 356 Brown Pelicans over 64 miles of beach between Yarborough Pass and Port Mansfield Channel during a 1992-1993 shorebird survey. Twelve individuals were observed on the Laguna Madre shoreline while the remaining 344 individuals were observed in the washover channels located south of the 33-mile marker. Forty-four individuals were observed between the park's north boundary and the 12.5-mile mark (Chaney *et. al.*, 1993a). In 1995, 553 birds were surveyed along the Gulf beach between the park's northern boundary and Yarborough Pass (Chaney *et. al.*, 1995b). In comparison, only one Brown Pelican was documented along the Laguna Madre shoreline between Yarborough Pass and the park's northern boundary (Chaney *et. al.*, 1995a). It is evident that Brown Pelicans prefer the Gulf beach shoreline instead of the Laguna Madre shoreline.

Brown Pelicans are generally found along the Gulf beach tide line in the morning hours and along the Laguna Madre shoreline and washover channels located in the southern portion of the park in the afternoons. When observed in the washover channels, Brown Pelicans were generally associated with Double Crested Cormorants, gulls, and terns. Brown Pelicans are not observed in other habitats within the park.

Based on nearly thirty years of park colonial waterbird census data, Brown Pelicans have not been documented nesting within the park (TCWD, http://texascoastalprogram.fws.gov/Texas_Colonial_Waterbird_Census_2002.xls). However, they do nest on an island located in Corpus Christi Bay, which is located approximately 20 miles from the park.

Impacts of Alternative A, No Action, on Eastern Brown Pelican

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts to the Eastern Brown Pelican. However, existing impacts on Eastern Brown Pelicans in the analysis area would continue as the result of vehicle access and visitor uses along the 12.5-mile segment of Gulf beach

Park staff, 12 oil and gas operators, and an estimated 527,800 visitors annually use the 12.5- mile segment of Gulf beach for vehicle access. Approximately 95,000 visitors (18% of those using the Gulf beach) travel between the 6 to 12.5-mile marker, with some going below this point. Park staff conducts routine park operations along the beach. Vehicles on the Gulf beach would include 2 and 4-wheel drive cars and trucks, recreational vehicles, and on occasion larger vehicles associated with routine maintenance activities at the oil and gas sites located throughout the park. Vehicle traffic associated with oil and gas operations normally uses 4-wheel drive trucks, however, a large vehicle like a pumper-truck, would travel the beach corridor approximately every 10 days or so. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. Vehicles associated with the continuing operation of 13 oil and operations throughout the park that require access through this 12.5-mile segment of beach, are required by the NPS to drive above the tide line, which is generally farther away from the shorebirds that are found on the Gulf beach. The number of oil and gas-related vehicles are few; and operators are free to come and go to their operations to perform work specified in their approved plans of operations. These vehicles are not monitored and are expected to be driven at the posted speed limit of 15 to 25 mph.

Visitor uses on the beach include camping, fishing, swimming, wading, picnicking, nature viewing, and beachcombing.

Visitor activities and vehicles travelling within or close to the "wet-zone" would displace Eastern Brown Pelicans and cause them to take flight. They most likely would fly along the shoreline to another suitable location and land, or they can fly offshore. This displacement would be temporary since shorebirds disturbed by vehicles or park visitors are generally seen landing a short distance away and continuing to perform their pre-disturbance behavior. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants. The intensity of impacts would be variable, depending on number of vehicles using the beach on a given day. Impacts would be highest during the visitor use period from May through September, peaking in August; and would be concentrated in the first 5 miles of Gulf beach where most visitor use occurs.

Existing vehicle access and visitor use along the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on Eastern Brown Pelicans within the analysis area.

Cumulative Impact

Under Alternative A, No Action, cumulative impacts on Eastern Brown Pelican would occur from visitor uses, and vehicle access along the Gulf beach by the park, visitors, and oil and gas operators as a result of the continuing operation of 12 nonfederal oil and gas operations and future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Cumulative impacts of visitor uses and vehicle access along the Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on the Eastern Brown Pelican; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the Eastern Brown Pelican, primarily along the Gulf shoreline.

Conclusion
Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on the Eastern Brown Pelican; however, existing visitor uses and vehicle use on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on Eastern Brown Pelican within the analysis area. Cumulative impacts from visitor uses and vehicle access along the Gulf beach by the park, visitors, and operators of existing and future oil and gas operations in and adjacent to the park, are expected to result in localized, short to long-term, negligible to minor, direct, adverse impacts; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate, indirect, adverse impacts along the Gulf shoreline. No impairment to the Eastern Brown Pelican would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Eastern Brown Pelican
Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced.

Existing impacts on Eastern Brown Pelican within the analysis area would be similar to Alternative A, No Action, with localized, short to long-term, negligible to minor, direct, adverse impacts on Eastern Brown Pelican within the analysis area from visitor uses and vehicle access on the 12.5-mile segment of Gulf beach.

BNP would use a 12.5-mile segment of Gulf beach to access its proposed wellpad. Vehicles would displace Eastern Brown Pelicans causing them to take flight and either fly along the shoreline to another suitable location and land, or fly offshore. This displacement would be temporary, but potentially more frequent than those of the public, especially during the higher frequency of heavy vehicle use during the construction of the access road, well/production pad, and flowline, and placement and removal of the drill rig. Shorebirds disturbed by park visitors are generally seen landing a short distance away and continuing to perform their pre-disturbance behavior, and this is expected to be the same for the Eastern Brown Pelicans for the duration of the drilling project.

BNP would be required to confine vehicle use above the "wet-line" (see Table 4 for mitigation measures included in BNP's plan of operations, and Table 5 for mitigation measures applied by the NPS as conditions of approval). This zone is generally farther away from the shorebirds that are found on the Gulf beach. Additionally, vehicles associated with this project would be grouped together prior to entering the beach, escorted to the site, and limited to a reduced speed of 15 mph, versus the posted speed limit of 25 mph. This should reduce the amount of disturbance on the Eastern Brown Pelican, as reducing speed and the number of times the bird is displaced would lessen the overall impact to the tern. It is known that reduced speed does have less of an affect on many shorebirds. It is expected that as the larger trucks approach, the birds would take flight no matter what the speed, due in part to the size of the vehicle and greater noise generated. As a result of mitigation measures, the intensity of impacts of vehicle use on the shoreline would be reduced.

Visitor uses on the beach include camping, fishing, swimming, wading, picnicking, nature viewing, and beachcombing.
Existing vehicle access and visitor use on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on Eastern Brown Pelican.

Cumulative Impact
Under Alternative B, Proposed Action, cumulative impacts on Eastern Brown Pelican throughout the park would be similar to those described under No Action, with visitor uses and vehicle access along the Gulf beach resulting in localized, short-term, negligible to minor, direct, adverse impacts on the Eastern

Brown Pelican; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to minor, indirect, adverse impacts on the Eastern Brown Pelican.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's vehicle access above the "wet-line" along the 12.5-mile segment of Gulf beach, in addition to existing visitor uses and vehicle access within this beach corridor, would result in localized, short to long-term negligible to minor, direct, adverse impacts on Eastern Brown Pelican within the analysis area. Cumulative impacts would be similar to those described under Alternative A, No Action, with visitor uses and vehicle access along the Gulf beach resulting in localized, short to long-term, negligible to minor, direct, adverse impacts to Eastern Brown Pelican; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the Eastern Brown Pelican. No impairment to Eastern Brown Pelican would result from implementation of this alternative.

Interior Least Tern, Black Tern, and Piping Plover

Affected Environment

The Interior Least Tern (*Sterna antillarum)* is the smallest member of the tern family (Nebraska Game and Parks Commission, http://www.ngpc.state.ne.us/wildlife/ltern.html). Only colonies located 50 miles from the coast are considered endangered at the federal level. However, all colonies of Interior Least Terns throughout the state are considered endangered at the state level. They are found along the western and eastern coasts of the United States and from southern Maine to the southern tip of Texas. No critical habitat has been designated for this species in this park.

Their habitat includes mudflats, beaches, and sandbars (Scott, 1983). Interior Least Terns forage on small fish captured in shallow coastal waters. Fall migration begins mid to late July and continues through early September. Wintering habitat for Interior Least Terns exist along the beaches of Central and South America.

Interior Least Terns are colonial nesters that breed throughout the United States on riverbeds, sandbars, and beaches. Both sexes participate in making shallow nest scrapes. The female will select a suitable scrape. If the first clutch of eggs is lost, Interior Least Terns will re-nest up to two times with each re-nesting attempt taking place at a new site. Nesting season begins in spring and ends in early August. Migration from breeding areas to winter grounds usually begins in August and is complete by early September (Nebraska Game and Parks Commission, http://www.ngpc.state.ne.us/wildlife/ltern.html). Interior Least Terns are present at Padre Island National Seashore seasonally between April and September and utilize the park for foraging, nesting, and migration. These colonial nesters utilize the isolated manmade and natural islands in the Laguna Madre. Nesting season in south Texas generally occurs between April and July and has occurred within the park since 1973 (TCWD, http://texascoastalprogram.fws.gov/Texas_Colonial_Waterbird_Census_2002.xls). Documentation shows that Interior Least Terns generally prefer the Laguna Madre shoreline during June and July possibly for breeding, and the Gulf beach shoreline during April, May, August, and September (Chaney *et. al*., 1995b). In 2002, at least two pairs of Interior Least Terns nested on a manmade island 17 miles north of the project area. Interior Least Terns have not been documented nesting on the Gulf beach within the park, however, based on surveys in 1993 and 1995, the Interior Least Tern population appears to be stable with 8 birds/mile surveyed (Chaney *et. al*., 1995b)

The Black Tern (*Chlidonias niger*) is considered a species of concern at the federal level, and there is no critical habitat designated within the national seashore.

Black Terns inhabit temperate grassland, freshwater lake, freshwater rivers, prairies, lakeshores and marshes with fairly dense cattail or other marsh vegetation and pockets of open water (Null, 1997). The breeding habitat for Black Terns consists of dead canes of marsh or on floating masses of dead plants. Black Terns breed in north central United States northward into Canada and the Northwest Territories. Sporadic nesting is observed in California, Oregon, and Kansas. Wintering habitat is located along the Pacific coast of Mexico, Central and South America and the northern coast of South America. Non-breeding summer habitat consists of marine and coastal areas located along the Gulf of Mexico (Dunn and Agro, 1995).

Black Terns forage on insects such as dragonflies, moths, grasshoppers, and beetles, and freshwater fish when at the breeding grounds. Prey consists of small marine fish including anchovies and silversides, and they will eat crayfish and mollusks. These Terns are seen foraging in the coastal waters off Padre Island National Seashore during the summer months. The Black Tern is a spring and fall migrant through the park, and is a common summer resident along the Gulf shore within Padre Island National Seashore. No breeding has been documented along the Texas coast (Rappole and Blacklock, 1985). These Terns generally nest in colonies from March to early August.

In a 1994 – 1995 survey, 5,107 Black Terns were documented in the park, with three times as many black terns documented on the Laguna Madre side of the park than on the Gulf beach (Chaney *et.al.*, 1995b). These high totals were found in August, prior to their fall migration.

The Piping Plover (*Charadrius melodus*), one of the least common members of the plover family, is considered threatened both federally and by the state of Texas. The population is currently estimated to be approximately 1400 pairs (USFWS, http://pipingplover.gws.gov/overview.html).

The Piping Plover is a shorebird that migrates from Nova Scotia south to North Carolina and winters along the Gulf Coast from Florida to Mexico, along the Atlantic Coast from Florida to North Carolina, and in the Caribbean. They are found on sandy beaches, lakeshores, dunes, and often well above the water line (Sibley, 2000).

Piping Plovers breed along prairie-rivers and on alkali wetlands of the Northern Great Plains, sandy beaches along Great Lakes shorelines, and Atlantic coast beaches. These birds nest in shallow depressions built in the sand with both parents incubating the eggs and exhibiting a monogamous mating system. Breeding can occur between March and August with both fledglings and parents leaving the nest by September. It is clear that direct interference of nests by vehicles, humans, and dogs significantly affects breeding success (TPWD, http://tpwd.state.tx.us/nature/ending/birds/piplover.htm). Piping Plovers disturbed during nesting by flooding or other disturbance may abandon the nest and establish a second nest in the vicinity at a new location (USFWS, http://pipingplover.gws.gov/overview.html).

Piping Plovers forage mostly on benthic invertebrates, insects, and crustaceans found within the inter-tidal areas of ocean beaches, wash over areas, mudflats, sand flats, wrack lines, and shorelines of coastal ponds, lagoons or salt marshes. Piping Plovers have been documented defending feeding territories, and foraging on benthic invertebrates and insect larvae along both the Laguna Madre and Gulf beach inter-tidal areas within the park.

Piping Plovers have been documented throughout the park as a winter resident and fall/spring migrant (Chaney *et.al.*, 1993a, 1993b, 1995a, and 1995b). Piping Plovers are generally found along the Laguna Madre, Gulf beach, and washover channels within the park and occur at the park 11 months of the year with the exception of February (Chaney *et.al.*, 1993a and 1993b), with the highest concentrations occurring between August and December. September typically has the highest numbers (Chaney *et.al.*, 1995b) of Piping Plovers found in the park. Padre Island National Seashore protects substantial acreage

of wintering habitat for the Piping Plover, with the most important area being the broad wind tidal flats located at the north boundary of the park. It is estimated that between 60-65% of all Piping Plovers winter in South Texas (Chaney *et. al.*, 1995a).

In 1992 – 1993, a study documented 602 plovers over the entire 60 miles of south beach, with 400 of these being found along the Gulf beach foreshore (Chaney *et. al.*, 1993a). Of the 600 birds observed, 87 Plovers occurred between the zero and twelve-mile mark accounting for nearly 14% of the total number of Plovers counted (Chaney *et. al.*, 1993a). In 1994 – 1995, 150 plovers were documented between the zero and fifteen-mile mark on the Gulf Beach with the majority of these inhabiting the Gulf beach foreshore (Chaney *et. al.*, 1995b).

No nesting has been documented in south Texas or Padre Island National Seashore to date, and there is no critical habitat designated for this species. In 2000, the US Fish and Wildlife Service proposed 80% of the park as Piping Plover critical habitat. Final habitat designation figures did not include Padre Island National Seashore as critical habitat. Part of the reason was that the species is already protected by existing NPS regulations, policies, and management measures, and designating critical habitat would not provide a greater level of protection.

Impacts of Alternative A, No Action, on Interior Least Tern, Black Tern, and Piping Plover

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on Interior and Black Terns and Piping Plovers. However, impacts on these species in the analysis area would continue as the result of vehicle access and visitor uses along the 12.5-mile segment of Gulf beach.

Park staff, 12 oil and gas operators, and an estimated 527,800 visitors annually use the 12.5- mile segment of Gulf beach for vehicle access. Approximately 95,000 visitors (18% of those using the Gulf beach) travel between the 6 to 12.5-mile marker, with some going below this point. Park staff conducts routine park operations along the beach. Vehicles on the Gulf beach would include 2 and 4-wheel drive cars and trucks, recreational vehicles, and on occasion larger vehicles associated with routine maintenance activities at the oil and gas sites located throughout the park. Vehicle traffic associated with oil and gas operations normally uses 4-wheel drive trucks, however, a large vehicle like a pumper-truck, would travel the beach corridor approximately every 10 days or so. Vehicles would compact and rut the beach sand. There would be some loss of benthic organisms due to crushing by tires and changes in the aerobic conditions of the compressed wetted sand environment. As noted in the wildlife section of this chapter, in a study conducted by Texas A&M, Center for Coastal Studies (Englehard and Withers 1997), it was found that benthic organisms recovered quickly, within 10 days of the disturbance, following mechanical raking of the beach. It is expected that similar recovery of the benthic organisms would occur in the case of infrequent vehicle travel in the wet zone. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. Vehicles associated with the continuing operation of 13 oil and operations throughout the park that require access through this 12.5-mile segment of beach, are required by the NPS to drive above the tide line, which is generally farther away from the shorebirds that are found on the Gulf beach. The number of oil and gas-related vehicles are few; and operators are free to come and go to their operations to perform work specified in their approved plans of operations. These vehicles are not monitored and are expected to be driven at the posted speed limit of 15 to 25 mph.

Visitor uses on the beach include camping, fishing, swimming, wading, picnicking, nature viewing, and beachcombing.

The “wet-zone” along the Gulf beach is preferred by the Interior Least Tern and Black Tern for resting, loafing, and feeding. Piping Plovers utilize the Laguna Madre wind-tidal flats and Gulf beach for foraging and resting. Benthic invertebrates are the primary food source for Piping Plovers.

Visitor activities and vehicles traveling within or close to the "wet-zone" would displace terns and Piping Plovers and cause them to take flight. They most likely would fly along the shoreline to another suitable location and land, or they can fly offshore. This displacement would be temporary since shorebirds disturbed by vehicles or park visitors are generally seen landing a short distance away and continuing to perform their pre-disturbance behavior. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants. The intensity of impacts would be variable, depending on number of vehicles using the beach on a given day. Impacts would be highest during the visitor use period from May through September, peaking in August; and would be concentrated in the first 5 miles of Gulf beach where most visitor use occurs.

Existing vehicle access and visitor use along the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on Interior Least Terns, Black Terns, and Piping Plovers within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on Interior Least and Black Terns and Piping Plovers would occur from visitor uses and vehicle access along the Gulf beach by park staff, visitors, and oil and gas operators as a result of the continuing operation of 12 nonfederal oil and gas operations and future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Cumulative impacts of visitor uses and vehicle access along the Gulf beach would continue to cause these shorebirds to be flushed, resulting in localized, short to long-term, negligible to minor, direct, adverse impacts on Interior Least and Black Terns and Piping Plovers; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on these species, primarily along the park's shorelines.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on the Interior Least Tern, Black Tern, and Piping Plover; however, existing visitor uses and vehicle access on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on these species within the analysis area. Cumulative impacts from visitor uses and vehicle access along the Gulf beach by the park, visitors, and operators of existing and future oil and gas operations in and adjacent to the park, are expected to result in localized, short to long-term, negligible to minor, direct, adverse impacts; however, in the event of a spill from offshore oil and gas operations or tankers, impacts could be long-term and widespread, ranging from negligible to moderate, indirect, adverse impacts. No impairment to the Interior Least Tern, Black Tern, and Piping Plover would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Interior Least Tern, Black Tern, and Piping Plover

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced.

Existing impacts on Interior Least and Black Terns and Piping Plovers within the analysis area would be similar to Alternative A, No Action, with localized, short to long-term, negligible to minor, direct, adverse impacts on these species within the analysis area from visitor uses and vehicle access on the 12.5-mile segment of Gulf beach.

BNP would use a 12.5-mile segment of Gulf beach to access its proposed wellpad. Vehicles would displace terns and Piping Plovers causing them to take flight and either fly along the shoreline to another suitable location and land, or fly offshore. This displacement would be temporary. Shorebirds disturbed

by park visitors are generally seen landing a short distance away and continuing to perform their pre-disturbance behavior, and this is expected to be the same for the terns and Piping Plovers for the duration of the drilling project.

BNP would be required to confine vehicle use above the "wet-line" (see Table 4 for mitigation measures included in BNP's plan of operations, and Table 5 for mitigation measures applied by the NPS as conditions of approval). This zone is generally farther away from the shorebirds that are found on the Gulf beach. Additionally, vehicles associated with this project would be grouped together prior to entering the beach, escorted to the site, and limited to a reduced speed of 15 mph, versus the posted speed limit of 25 mph. This should reduce the amount of disturbance on the Eastern Brown Pelican, as reducing speed and the number of times the bird is displaced would lessen the overall impact to the tern. It is known that reduced speed does have less of an effect on many shorebirds. It is expected that as the larger trucks approach, the birds would take flight no matter what the speed, due in part to the size of the vehicle and greater noise generated. As a result of mitigation measures, the intensity of impacts of vehicle use on the shoreline would be reduced.

The proposed project is expected to take place between August and December, which is the time of the year when the highest concentrations of Piping Plovers occur at the park. Based on previous studies, approximately 14% of the total Piping Plovers occurring in the park are likely to be utilizing this segment of Gulf beach. Piping Plovers utilize both sides of the park depending on available habitat and time of day. Piping Plovers do not nest at Padre Island.

Visitor uses on the beach include camping, fishing, swimming, wading, picnicking, nature viewing, and beachcombing.

Existing visitor uses and vehicle access along the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, direct, adverse impacts on Interior Least Tern, Black Tern, and Piping Plover.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on Interior Least Terns, Black Terns, and Piping Plovers throughout the park would be similar to those described under No Action, with visitor uses and vehicle access along the Gulf beach resulting in localized, short to long-term, direct, negligible to minor, adverse impacts on these species; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the Interior Least Tern, Black Tern, and Piping Plover.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's vehicle access above the "wet-line" along the 12.5-mile segment of Gulf beach, in addition to existing vehicle access and visitor uses along this segment of beach would result in localized, short to long-term negligible, direct, adverse impacts on Interior Least and Black Terns and Piping Plovers. Cumulative impacts would be similar to those described under Alternative A, No Action, with vehicle use along the Gulf beach resulting in localized, short to long-term, negligible to minor, direct, adverse impacts on Interior Least and Black Terns and Piping Plovers; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate, indirect, adverse impacts on the Interior Least and Black Terns and Piping Plovers. No impairment to Interior Least Tern, Black Tern, and Piping Plover would result from implementation of this alternative.

Peregrine and Northern Aplomado Falcons

Affected Environment

The Peregrine Falcon (*Falco peregrinus*) has been federally de-listed but is still listed as endangered at the state level. The Peregrine Falcon has nearly worldwide distribution, thriving in a great variety of habitats from arctic tundra to tropical rain forests. In North America, this species is best known as inhabitants of canyons and cliffs, though it has been documented to reside amongst the skyscrapers of large cities.

The Peregrine Falcon is a migratory species that winters along the Gulf of Mexico and as far south as Central and South America. They are known as common winter inhabitants of the southern portion of Padre Island National Seashore, arriving sometime in early fall and departing mid-May (Chaney *et. al.*, 1993a). This falcon is generally only seen twice a year as it migrates through the state in spring and fall (TPWD, http://tpwd.state.tx.us/nature/ending/birds/peregrine.htm).

Peregrines breed in a wide range of habitats including the edge of cliffs, raised mounds on the ground in bare open spaces, in hollow tree stumps, and ledges of large city buildings. Peregrines tend to return to the same site annually. Breeding season begins in early March in the south and mid-May in the north. A single brood of three to four eggs are laid in a hollow scrape with no materials added to it. Females closely tend their young for the first 14 days, but leave them more each day as they grow. The nestlings fly at 35-42 days, but appear to be dependent on the adults for an additional two months.

This species predates upon waterbirds but normally does not attack ducks that are sitting on the water. Those individuals who have become city dwellers are most likely attracted to the high populations of Rock Doves (pigeons). They typically feed on Neotropical migrants, waterfowl, and shorebirds while in the area of Padre Island National Seashore. No critical habitat has been designated for this species at the park.

Peregrine Falcons are an increasingly common migrant at the park, especially in the fall, and they are a rare winter resident. Peregrine Falcons hunt on broad mudflats along the Laguna Madre shoreline, and rest on any higher elevation, typically on the foredunes along the Gulf beach (Chaney *et. al.*, 1995b). They rarely predate shorebirds that forage and rest on the Gulf beach. These birds are generally concentrated in the southern portion of Padre Island National Seashore, which is unique in that it is a main component of the migration route "staging area," particularly for juveniles, during the spring and fall migration (Maechtle, 1993). From actual counts, more than 2,000 Peregrine Falcons have utilized this area annually during their fall migration (Maechtle, 1993). The Gulf beach is a very important stopover area for foraging, resting, and is a landmark guide for many migratory birds (Chaney *et. al.*, 1993a). Padre Island National Seashore and South Padre Island are the only known localities in the Western Hemisphere where Peregrine Falcons can be found in such high concentrations during their spring migration.

The Northern Aplomado Falcon (*Falco femoralis septentrionaliss*) is considered a rare species at Padre Island National Seashore. Over the past ten years, approximately four sightings of individual Northern Aplomado Falcons have occurred in the Park along the main road, beach foredunes, and grasslands of the Northern ten miles of the park. These sporadic sightings generally occurred in winter and early spring. The most recent park sighting of a Northern Aplomado Falcon occurred in December 1999 on the park's northern boundary. Individuals sighted appear to be transients, and no established adult pairs, territories, or nests have been documented within the park. The effects to this species are similar to those for the Peregrine Falcon and therefore, they are presented together.

Impacts of Alternative A, No Action, on Peregrine and Northern Aplomado Falcons

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on Peregrine and Northern Aplomado Falcons. However, impacts on the falcons in the

analysis area would continue as the result of occasional forays by park staff, visitors, and oil and gas operators onto the Gulf foredunes.

Park staff, 12 oil and gas operators, and an estimated 95,000 (18% of those using the Gulf beach) park visitors use the 12.5-mile segment of Gulf beach for vehicular access. Visitor uses along this segment of Gulf beach include camping, fishing, swimming, wading, picnicking, nature viewing, and beachcombing. Peregrine and Northern Aplomado Falcons rest on any high elevation within the park. Along this segment of Gulf beach, falcons have routinely been seen resting on the foredunes. Park staff performing routine park operations, recreating visitors, and nonfederal oil and gas operators occasionally hike to/or over the foredunes into the backcountry. These activities on the dunes may displace a resting falcon and cause it to take flight. The potential for displacement would be highest during the visitor use period from May through September, peaking in August; and would be concentrated in the first 5 miles of Gulf beach where most visitor use occurs.

Existing park and visitor uses along the 12.5-mile segment of Gulf beach would result in localized, short-term, negligible, adverse impacts on Peregrine and Northern Aplomado Falcons within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on Peregrine and Northern Aplomado Falcons could occur from park activities, visitor uses, and oil and gas activities in the vicinity of the Gulf foredunes or Laguna Madre shoreline where falcons primarily rest or feed. Developments and activities that could impact these areas include the continuing operation of up to 12 nonfederal oil and gas operations, and future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Cumulative impacts would result in localized, short to long-term, negligible to minor, adverse impacts on Peregrine and Northern Aplomado Falcons.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on the Peregrine and Northern Aplomado Falcons; however, existing uses on the Gulf foredunes, result in localized, short-term, negligible, adverse impacts on the falcons. Cumulative impacts from park activities, visitor uses, and existing and future oil and gas operations in and adjacent to the park on the Gulf foredunes and wind tidal flats along the Laguna Madre shore, are expected to result in localized, short to long-term, negligible to minor, adverse impacts on the Peregrine and Northern Aplomado Falcons. No impairment to the Peregrine Falcon and Northern Aplomado Falcon would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Peregrine and Northern Aplomado Falcons

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced.

Existing impacts on Peregrine and Northern Aplomado Falcons within the analysis area would be similar to Alternative A, No Action, with localized, short-term, negligible, adverse impacts on the falcons resulting from occasional forays by park staff performing routine park operations, recreating visitors, and nonfederal oil and gas operators hiking to/or over the foredunes and displacing/flushing falcons.

BNP's access to the proposed Lemon/Lemon Seed Unit wells would require a 20-foot wide cut through a lower-lying Gulf foredune at the 12.5-mile marker. The proposed dune cut would result in the loss of 9,000 square feet (0.20 ac.) of dune habitat preferred by Peregrine and Northern Aplomado Falcons for resting. If the wells were not placed in production, the foredune would be stabilized and revegetated. If the wells were placed in production, the sides of the pass would be vegetated to prevent additional

erosion from wind passing through the break in the dunes. Given the approximate 257,000,000 square feet (5,900 ac.) of Gulf beach dune habitat available within the park, the proposed cut through the foredunes and loss of Peregrine and Northern Aplomado Falcon habitat would result in a localized, short- to long-term, negligible, adverse impact on the falcons.

The likelihood of a Peregrine or Northern Aplomado Falcon being affected by vehicular traffic along the Gulf beach is negligible. These falcons are not known to predate shorebirds along the Gulf shoreline; and resting is confined to high points, preferably on the dunes. Beach traffic might on occasion displace a resting Peregrine or Northern Aplomado Falcon from its perch on the foredunes, but the distance between beach traffic and the foredunes is sufficiently great to not cause falcons to normally do so.

Construction of the access road, well/production pad, and flow line, and drilling and production operations would not impact Peregrine and Northern Aplomado Falcons. These activities would take place in grassland and wetland habitats. These areas are void of trees and shrubs that could be used for perching. In addition, these habitats are not suitable foraging habitats for the falcon. Therefore, these habitats are not likely to be used to any degree other than when this species flies between park shorelines to forage or rest. The proposed drilling and production operations may provide structures that could be used for perching. Drilling and production equipment will be higher than the surrounding terrain and provide an opportunity for this species to perch. Peregrine and Northern Aplomado Falcons have been documented using oil and gas facilities in the park for perching. Since few perching structures exist and the historic use of oil and gas equipment by falcons, it is likely that equipment associated with this alternative could be used by these species. In addition, should the wells be placed in production, BNP proposes to plant native willow shrubs or trees around the production facility to minimize visual impacts to visitors, and provide and perpetuate habitat for migratory birds. The additional perches that Peregrine and Northern Aplomado Falcons could use to rest, eat prey, and seek out prey; and the perpetuation of habitat for migratory birds which is one of the Peregrine's food sources, would result in localized and long-term, negligible, beneficial impacts, for the Peregrine and Northern Aplomado Falcons.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on Peregrine and Northern Aplomado Falcons throughout the park would be similar to those described under No Action, with localized, short to long-term, negligible to minor, adverse impacts resulting from park activities, visitor uses, and existing and future oil and gas operations in and adjacent to the park on the Gulf foredunes and wind tidal flats along the Laguna Madre shore.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's proposed cut through the foredunes would result in the loss of Peregrine and Northern Aplomado Falcon habitat, with localized, short- to long-term, negligible, adverse impact on the falcons. However, the drill rig and production facilities, and BNP's planting of willow shrubs or trees around the production facility would provide additional perches for Peregrine and Northern Aplomado Falcons, resulting in localized and long-term, negligible, beneficial impacts, for the falcons. Cumulative impacts on Peregrine and Northern Aplomado Falcons throughout the park would be similar to those described under No Action, with localized, short to long-term, negligible to minor, adverse impacts resulting from park activities, visitor uses, and existing and future oil and gas operations in and adjacent to the park on the Gulf foredunes and wind tidal flats along the Laguna Madre shore. No impairment to the Peregrine Falcon and Northern Aplomado Falcon would result from implementation of this alternative.

White-tailed Hawk

Affected Environment

The White-tailed Hawk (*Buteo albicaudatus*) is not federally listed but is listed as threatened by the state. There is no critical habitat designated for this species in the park.

The White-tailed Hawk is a tropical and subtropical species ranging from southern Texas (year round) to Mexico and Central and South America: also some of the islands of the South Caribbean. It's preferred habitat includes open, semi-open, or thinly forested country, whether flat or hilly. In southern Texas, they are most visible in the grassland prairies near the coast, often where there are only scattered bushes, yuccas, or large cacti (Channing, http://www.hawk-conservancy.org/priors/whitetailedhawk.html). White-tailed Hawks are considered common to uncommon in south Texas (Rappole and Blacklock, 1994).

In southern Texas, where rabbits are abundant, White-tailed Hawks feed upon them extensively, although not exclusively. It has been known to take cotton rats, snakes, lizards, frogs, grasshoppers, cicadas, and beetles, and occasionally a quail or other bird. When the wind is favorable, the White-tailed Hawk resorts to hovering while hunting.

Breeding begins late January and usually ends in July (Baicich and Harrison, 1997). This Buteo builds a large nest of freshly broken twigs, often thorny ones, mixed with bunches of dry grass and lined with finer material, among which are some green sprays of mesquite or other plants. The nest is added to each year and may become quite large, measuring almost three feet across (Channing, http://www.hawk-conservancy.org/priors/whitetailedhawk.shtml).

Within the park, the White-tailed Hawk is common during the winter months and uncommon throughout spring, summer, and fall (McCraken and Clark, 1990).

White-tailed Hawks have been observed in grassland and wind-tidal flat habitats within the park. In 1993, four White-tailed Hawks were seen flying over the wind tidal flats between the 19 and 26-mile mark while 20 birds were observed between Yarborough Pass and the north boundary (Chaney *et. al*., 1993b and 1995a). White-tailed Hawks have been observed during the fall and winter months within the park. Less than 10% of the White-tailed Hawks documented in 1995 occurred over the Gulf beach habitat while the remaining 90% were seen flying over the wind tidal flats of the Laguna Madre (Chaney *et. al*., 1995b). This indicates that the White-tailed Hawk generally prefers the western portion of the park.

Nesting accounts for White-tailed Hawks are rare. However, a single nest was documented in the park in 2002, in a grassland habitat located 6.5 miles south of the end of Park Road 22. The nest was built in a 6-foot huisache (*Acacia farnesiana*) and appeared to be have been used previously and may indicate that the hawk had been nesting for several years.

Impacts of Alternative A, No Action, on White-tailed Hawks

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on White-tailed Hawks. There are no existing impacts on White-tailed Hawks within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on White-tailed Hawks throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, and future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres that may be located within the

park's grasslands and wind-tidal flats preferred by this species. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time. Other activities that could contribute to impacting this species include prescribed fires, routine park operations, and recreational activities. Cumulative impacts on White-tailed Hawks throughout the park are expected to be localized near developments, with short to long-term, negligible, adverse impacts.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on the White-tailed Hawk; and, there are no existing impacts within the analysis area. Cumulative impacts from park developments and operations, recreational activities, existing and future oil and gas operations that may be located within the park's grasslands and wind-tidal flats preferred by this species would result in localized, short to long-term, negligible, adverse impacts on the White-tailed Hawk.

Impacts of Alternative B, Proposed Action, on White-tailed Hawks

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. There are no existing impacts within the analysis area.

The construction of the access road and well/production pad would directly impact 4.17 acres of grassland habitat preferred by the White-tailed Hawk. If the wells do not go into production, the entire 4.17 acres would be reclaimed, resulting in localized, short-term, minor adverse impacts on White-tailed Hawk until the site is satisfactorily reclaimed and habitat returned.

However, if the wells are placed in production, the well pad would be reduced in half and a flowline installed to connect with one of the existing pipelines located west of the proposed wells. Flowline construction would disturb an additional 4.88 acres of hummocky uplands, of which 0.032 acres are within emergent wetlands. The potential for leaks and spills exists during all phases of oil and gas operations, resulting in impacts that could be serious on a very local level, with minor to major, short-term adverse impacts; however, with the mitigation measures included with this alternative, the intensity of impacts would be reduced. Construction of the access road, well/production pad and flowline, and drilling and production of the wells would cause the loss of habitat for the White-tailed Hawk, resulting in localized, short to long-term, negligible to minor, adverse impacts.

If the wells are placed in production, BNP proposes to plant native willow shrubs or trees around the production facility to minimize visual impacts to visitors, and provide and perpetuate habitat for migratory birds. The trees would provide additional perches for White-tailed Hawks to rest, eat prey, seek out prey, and possibly nest in. Further, the drill rig and production facilities may also provide additional perches for this species. These additional perches would result in localized and long-term, negligible, beneficial impacts, for the White-tailed Hawk.

Cumulative Action

Under Alternative B, Proposed Action, cumulative impacts on White-tailed Hawks throughout the park would be similar to those described under No Action, with park developments and operations, recreational activities, existing and future oil and gas operations that may be located within the park's grasslands and wind-tidal flats preferred by this species resulting in localized, short- to long-term, negligible, adverse impacts on the White-tailed Hawk.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced. BNP's proposed construction of an access road, well/production pad and flowline would directly impact 4.17 acres of grassland habitat preferred by the White-tailed Hawk, resulting in localized,

short-term, minor adverse impacts on White-tailed Hawk until the site is satisfactorily reclaimed and habitat returned. However, the drill rig and production facilities, and BNP's planting of willow shrubs or trees around the production facility would provide additional perches for White-tailed Hawks, resulting in localized and long-term, negligible, beneficial impacts. Cumulative impacts throughout the park would be similar to those described under No Action, with park developments and operations, recreational activities, existing and future oil and gas operations that may be located within the park's grasslands and wind-tidal flats preferred by this species resulting in localized, short- to long-term, negligible, adverse impacts on the White-tailed Hawk. No impairment to the Peregrine Falcon and Northern Aplomado Falcon would result from implementation of this alternative.

Loggerhead Shrikes and Neotropical Migratory Songbirds

Affected Environment

The Loggerhead Shrike (*Lanius ludovicianus*) is considered a species of concern at the federal level. All populations within the United States seem to be declining which has been attributed to the loss of habitat. This species is found throughout most of the United States, Mexico, and south-central Canada. It's wintering range includes the southern United States and into Mexico. Loggerhead Shrikes prefer open country such as savannas, prairie, and farmland with patches of trees or shrubs present. This species is a permanent resident throughout most of the state but is uncommon to rare in southern Texas (Rappole and Blacklock, 1994).

Shrikes are often found hunting from low perches where they can strike their prey quickly and return to the perch. They do not have talons and kill with a stunning blow from their beaks. They are known for their unique habit of impaling their prey on thorns or barb-wired fences and returning to feed later. Loggerhead Shrikes forage on insects in the summer and mice in winter. This species is solitary except for the breeding season, which begins in early May and continues into mid-July. Nests are constructed of twigs, bark, and other materials and usually found in isolated small trees. Loggerhead Shrikes can produce up to two broods annually.

Loggerhead shrikes commonly occur in park grasslands throughout the park and black willow and small shrub habitats that occur in the northern section of the park. This species is common during the spring, fall, and winter (McCracken and Clark, 1990) and considered rare in summer (Rappole and Blacklock, 1994). In 1997, a Loggerhead shrike was captured and banded in a dune area near Bird Island Basin (Blacklock *et. al.*, 1997). There has been no documented nesting of Loggerhead Shrikes at Padre Island National Seashore.

Padre Island National Seashore provides migratory habitat for a broad number of Neotropical migratory songbirds that occur within the park during the spring and fall migrations. Based on Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, Padre Island National Seashore has imposed the mitigation measures outlined in Tables 4 and 5 to protect these resources from impacts associated with oil and gas operations within the park.

Impacts of Alternative A, No Action, on Loggerhead Shrikes and Neotropical Migratory Songbirds

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on Loggerhead shrikes and Neotropical migratory songbirds. However, impacts on Loggerhead shrikes and Neotropical migratory songbirds would continue as the result of continuing operation of 2 existing pipelines within the analysis area.

Existing operation of the two gas pipelines located within the analysis area, west of the proposed wellsites, would continue to impact grassland habitat preferred by these species. Routine maintenance

along the two pipeline corridors would include accessing the pipeline corridor by truck or ATV to inspect surface equipment, and on an annual basis to excavate small sections of the lines to inspect the integrity of the pipelines. On occasion, a backhoe/front-loader would be used to excavate and replace segments of pipe. The occasional presence of vehicles and work crews, and associated engine noise could displace Loggerhead shrikes and Neotropical migratory songbirds during the occasional, and short periods that maintenance activities are being conducted along these segments of pipeline. The resulting disturbance would likely cause this species to take flight and move to other suitable habitat nearby. There is a potential for the pipelines to leak or rupture, releasing hydrocarbon products and contaminating soil. Impacts from spills could be localized, with minor to major, short-term adverse impacts on these species; however, with the mitigation measures and prompt response in the event of a spill, the intensity of impacts would be reduced. The continuing operation of the two pipeline segments within the analysis area would result in localized, short-term, negligible, adverse impacts on Loggerhead shrikes and Neotropical migratory songbirds, for the long life of these pipelines which could be 20 years or longer.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on Loggerhead shrikes and Neotropical migratory songbirds on grassland habitat preferred by these species throughout the park could result from the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, and future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres. As some oil and gas operations are developed in the park, others would be plugged, abandoned, and reclaimed; therefore, impacts would be distributed over time, resulting in cumulative impacts, localized near developments within grasslands throughout the park, with short to long-term, negligible to minor, adverse impacts. Leaks and spills from oil and gas operations would be localized, with minor to major, adverse impacts on grasslands; however, with the application of mitigation measures and prompt response in the event of a spill, impacts would be reduced to negligible to moderate, adverse impacts.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled; however, existing operation of 2 gas pipelines would result in localized, short-term, negligible, adverse impacts on Loggerhead shrikes and Neotropical migratory songbirds within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, and park developments and operations are expected to result in short to long-term, negligible to minor adverse impacts, localized near developments in grasslands preferred by these species throughout the park. Leaks and spills from oil and gas operations would be localized, with minor to major, adverse impacts on grasslands; however, with the application of mitigation measures and prompt response in the event of a spill, impacts would be reduced to negligible to moderate, adverse impacts. No impairment to Loggerhead shrikes and Neotropical migratory songbirds would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Loggerhead Shrikes and Neotropical Migratory Songbirds

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced, resulting in the short-term disturbance to grassland habitat preferred by Loggerhead shrikes and Neotropical migratory birds on up to 9 acres, and if completed to produce hydrocarbons, the long-term occupancy of 2.16 acres.

Existing impacts on Loggerhead shrikes and Neotropical migratory songbirds within the analysis area would be similar to Alternative A, No Action, with localized, short-term, negligible, adverse impacts associated with continuing operation of two gas pipelines.

Construction of the cut through the foredunes, access road, well/production pad, and flowline for the proposed Lemon/Lemon Seed Unit wells would directly impact up to 9 acres, resulting in the loss of grassland habitat preferred by these species for foraging and resting. The construction of the access road and well/production pad would directly impact 4.17 acres of undisturbed habitat. If the wells do not go into production, the entire 4.17 acres would be reclaimed, resulting in localized, short-term, minor adverse impacts on Loggerhead shrikes and Neotropical migratory songbirds, until the site is reclaimed.

However, if the wells are placed in production, the well pad would be reduced by 2.1 acres and a flowline installed to connect with one of the existing pipelines located west of the proposed wells. The imported caliche would be removed, the site recontoured to natural conditions, and native vegetation re-established to meet 70% cover. Flowline construction would disturb an additional 4.88 acres of hummocky uplands, of which 0.032 acres are hydric soils associated with emergent wetlands. A temporary loss of grassland habitat would occur while the flowline is being buried, until the corridor is revegetated. Adverse impacts on Loggerhead shrikes and Neotropical migratory songbirds from pad reclamation and flowline placement would be localized, minor, and short-term (lasting up to one year or more) during construction and revegetation activities. The continued use of the site for production operations would result in localized, long-term, minor, adverse impacts on Loggerhead shrikes and Neotropical migratory songbirds.

The potential for leaks and spills exists during all phases of oil and gas operations, resulting in impacts that could be localized, with minor to major, short-term adverse impacts on grassland habitat; however, with the mitigation measures included with this alternative, the intensity of impacts would be reduced.

Construction of the cut through the foredunes, access road, well/production pad, and flowline for the proposed Lemon/Lemon Seed Unit wells would directly impact up to 9 acres, resulting in the short- to long-term loss of grassland habitat and localized, negligible to minor, adverse impacts on Loggerhead shrikes and Neotropical migratory songbirds in the analysis area.

An indirect, localized, short-term, negligible beneficial impact may occur from the presence of shielded lighting on the drilling rig. This lighting would attract insects, which would provide a food source for the Loggerhead Shrike. In addition, the use of barbed wire around the wellpad could be utilized by this species for impaling prey. Finally, if the well goes into production, trees that would be planted for visual screening could result in localized, negligible, long-term beneficial impacts to Loggerhead Shrike and Neotropical migratory songbirds by providing perching and foraging habitat for these species.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on Loggerhead shrikes and Neotropical migratory songbirds throughout the park would be similar to those described under No Action, with impacts from existing and future oil and gas operations in and adjacent to the park, and park developments and operations resulting in short to long-term, negligible to minor adverse impacts, localized near developments in grasslands preferred by these species throughout the park. Leaks and spills from oil and gas operations would be localized, with minor to major, adverse impacts on grasslands; however, with the application of mitigation measures and prompt response in the event of a spill, impacts would be reduced to negligible to moderate, adverse impacts.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and could possibly produce hydrocarbons, resulting in the short-term disturbance to grasslands habitat preferred by Loggerhead shrikes and Neotropical migratory songbirds on up to 9 acres, and the long-term occupancy of 2.16 acres. Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term, negligible to minor, adverse impacts; however, drill rig lighting, barbed-

wire fencing, and planting willow shrubs or trees around production facilities would perpetuate perching and foraging habitat for these species, resulting in localized, short to long-term, negligible, beneficial impacts on these species.

3.10 Impacts on Visitor Use and Experience

Methodology

Visitor surveys and personal observations of visitation patterns combined with an assessment of what is available to visitors under current management were used to estimate the effects of the actions in the alternatives.

Negligible:	the impact is barely detectable, and/or will affect few visitors.
Minor:	the impact is slightly detectable, and/or will affect few visitors.
Moderate:	the impact is readily apparent and/or will affect some visitors.
Major:	the impact is severely adverse or exceptionally beneficial and/or will affect many visitors.

Affected Environment

The northern portion of the National Seashore is where most park development is located. Current park development includes a Visitor Center, Entrance Station, Park Headquarters and Maintenance facilities, Malaquite Campground, and Bird Island Basin.

Visitor use typically begins to increase in May and peaks in August, with the fewest visitors in December. Annual park visitation in 2000 was 754,045. There are no recent figures tracking use on park beaches, but information from Ditton and Gramann's (1987) publication, "A survey of Down-Island Visitors and Their Use Patterns at Padre Island National Seashore," indicated the following patterns:

1. Over one-half of visitors interviewed reported traveling no farther down-island than four miles past the end of the paved road (Park Road 22).
2. Seventy percent of beach users utilize the first 5 miles of south beach (denoted by "4-wheel drive only" sign) for their visit.
3. Almost 18% travel south of Little Shell Beach, even though individual destinations south of Little Shell Beach do not display high visitation.
4. Visitation patterns are similar in July, August, and September.
5. More fishermen use areas south of Yarborough Pass (15 mile Marker) than beach users.

Extrapolating visitation figures from Ditton and Gramann's 1987 study, given little or no change in visitor use patterns, the park estimates approximately people recreate on the Gulf shoreline of South Beach each year. Of these users, only 18%, or 95,000 visitors, venture farther south than Little Shell Beach. Little Shell Beach begins around Mile Marker 6 and extends south to Mile Marker 9, approximately.

These beach areas can be divided up into two-wheel drive accessible, four-wheel drive only recommended, and "closed" beach (no vehicle use). The Lemon/Lemon Seed project area encompasses the first 12.5 miles of "South" beach, beginning at the end of the paved section of Park road 22 and terminating just north of Yarborough Pass at the 12.5-mile mark. Most camping and a large portion of beach day use occur on the first five miles of "South" beach. South of the five-mile marker, at the four-wheel drive only sign, the number of visitors heading south towards Mansfield Channel decreases considerably.

Statistics show that about 25% of annual visitors utilize Bird Island Basin to camp and provide access to the Laguna Madre for their recreational opportunities. Some of these visitors will also use the Gulf for day use activities. The Gulf shoreline is used for recreational opportunities like surf fishing, swimming, shell collection, sunbathing, camping, and vehicle access to more remote areas of the beach (60+ miles). Padre Island National Seashore estimates that up to 50% of beach users arrive in two-wheel drive vehicles and concentrate their use on the Gulf shoreline at "North beach," the Malaquite Visitor Center (using "closed" beach), and the first five miles of "South beach." Eighteen percent (95,000 visitors) take the opportunity to access remote beach areas south of the five-mile marker, like Yarborough Pass and the Port Mansfield Channel, that are accessible (recommended) only to four-wheel drive vehicles.

Use of the backcountry, behind the dune line and across the island to the Laguna Madre, are of more limited interest in part because of the lack of access, and Padre Island National Seashore regulations and restrictions regarding the use of the dunes and wind tidal mud flats, etc., found in the center of the island.

Impacts on the visitor from the BNP project are expected to be from viewing the increased truck traffic, and being subjected to the noise generated by the larger trucks used for hauling drilling and production equipment, etc. to and from the site (see Table 3).

Impacts of Alternative A, No Action, on Visitor Use and Experience

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled, resulting in no new impacts on visitor use and experience. However, impacts on visitor use and experience in the analysis area would continue as the result of vehicle use along the 12.5-mile segment of Gulf beach by park staff, visitors, and 12 nonfederal oil and gas operators.

Park staff, 12 oil and gas operators, and an estimated 95,000 (18% of those using the Gulf beach) park visitors use the 12.5-mile segment of Gulf beach for vehicular access. Vehicles on the Gulf beach would include 2 and 4-wheel drive cars and trucks, recreational vehicles, and on occasion larger vehicles associated with routine maintenance activities at the oil and gas sites located throughout the park. Four-wheel drive vehicles are recommended for travel below the 5-mile marker. Vehicles would compact and rut the beach sand. Poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants. Some drivers could drive over the speed limit, or honk their horns and play their radios very loudly. The intensity of impacts would be variable, depending on number of vehicles using the beach on a given day. Impacts would be highest during the visitor use period from May through September, peaking in August; and would be concentrated in the first 5 miles of Gulf beach where most visitor use occurs. An estimated 527,800 visitors annually use the Gulf beach. Vehicle traffic associated with oil and gas operations normally uses 4-wheel drive trucks, however, a large vehicle like a pumper-truck, would travel the beach corridor approximately every 10 days or so to access 12 existing oil and gas operations located throughout the park in order to perform routine maintenance.

The existing operation of the 2 pipelines located to the west of the proposed wellsites would continue. However, there should be no impact on visitor use and experience as these pipeline segments are sited 3,200 to 4,000 feet from the dune line in the backcountry where there is no vehicular access available. Company vehicles access onto the pipeline corridors either near the end of Park road 22 or from the Yarborough Pass road. If visitors were to hike from the Gulf beach over the foredunes to view the backcountry in the vicinity of these pipeline segments, there would be nothing to see because these pipeline segments are buried and the surface of the pipeline corridor is vegetated. In the rare event that pipeline maintenance activities are occurring at the same time that a visitor was looking towards the Laguna Madre, the pipeline maintenance activities occurring 3,200 to 4,000 feet away from the dune line would have little visual impact.

Existing uses, including vehicle access along the 12.5-mile segment of Gulf beach, would result in localized, short to long-term, negligible to minor, adverse impacts on visitor use and experience within the analysis area.

Cumulative Impacts

Under Alternative A, No Action, cumulative impacts on visitor use and experience throughout the park could result from the visual impact of human developments on the natural scenery associated with the continuing operation of 12 nonfederal oil and gas operations within the park on 349 acres, park developments on 391 acres, and future drilling and production of up to 17 wells projected in the park's reasonably foreseeable development scenario on up to 248 acres. Other park activities that could contribute to impacts include prescribed fires, routine maintenance of park roads, and park and visitor vehicle use. Cumulative impacts could also result from conflicts between visitor uses and over-use of park resources and developments.

Degradation of park resources and values could affect park visitors' perception of the park and their experience. Dredging and maintenance of the Intracoastal Waterway and other channels near the park could increase sedimentation within the Laguna Madre in the park and damage seagrass beds and fishery resources. Spills from oil and gas activities located in and adjacent to the park, including tanker traffic in the Gulf of Mexico, could cause widespread impacts and result in long-term clean-up and remediation, and areas that would be closed to visitors. Spills of hydrocarbons and other contaminating or hazardous substances could also pose serious health and safety concerns. Some oil and gas operations and park operations would introduce elevated noise and odors. With the application of mitigation measures detailed in the park's Oil and Gas Management Plan and Final Environmental Impact Statement (PAIS 2000), and incorporated into operators' plans of operations, impacts would be avoided or minimized.

Cumulative impacts on visitor use and experience throughout the park are expected to be localized near developments or activities, with short to long-term, minor to moderate, adverse impacts; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate adverse impacts on visitor use and experience, primarily along park shorelines.

Conclusion

Under Alternative A, No Action, the Lemon/Lemon Seed Unit wells would not be drilled; however, existing vehicle use on the 12.5-mile segment of Gulf beach would result in localized, short to long-term, negligible to minor, adverse impacts on visitor use and experience within the analysis area. Cumulative impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses are expected to result in short to long-term, minor to moderate, adverse impacts, but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate adverse impacts on visitor use and experience, primarily along park shorelines. No impairment to visitor use and experience would result from implementation of this alternative.

Impacts of Alternative B, Proposed Action, on Visitor Use and Experience

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced, resulting in the short-term loss of natural scenery on up to 9 acres, and long-term occupancy by oil and gas developments on 2.16 acres.

Existing impacts on visitor use and experience within the analysis area would be similar to Alternative A, No Action, with localized, short to long-term, negligible to minor, adverse impacts associated with vehicle use on the 12.5-mile segment of Gulf beach.

BNP would use the 12.5-mile segment of Gulf beach to access its proposed wellpad. BNP would be required to confine vehicle use above the "wet-line" and observe speed limits (see Table 5 for mitigation

measures applied by the NPS as conditions of approval). As described above under No Action, vehicles could compact and rut beach sands; and poorly maintained vehicles could drip or leak motor oil, coolant, and other lubricants on the beach. BNP vehicle access on the beach could result in deeper and wider rutting, possible conflicts with visitors sharing the beach driving corridor, and repeated exposure to up to 20 trucks each day. These vehicular impacts could last for up to 141 days for drilling both wells. If water needed to drill the wells were transported down the beach by water truck, this would require approximately 155 loads of water hauled during the course of drilling Well No.1-1000S and approximately 85 loads while drilling Well No.1-1008S. Another alternative for delivering water to the well site would involve the use of a temporary delivery line that traverses the beach and originates at the Dunn-Murdock #1 location approximately 1.5 mile south of the proposed Lemon/Lemon Seed Unit wells. Use of the delivery line and pumps would eliminate this truck traffic, but would cause other issues related to refueling, secondary containment, noise, public safety, and the need for multiple pumps to push the water to the well site. If the wells were productive, occasional gas vehicular traffic would traverse the Gulf beach to perform routine, periodic maintenance and removal of condensate from the wells.

Construction of the dune cut/access road, well/production pad, and flowline could result in the short-term loss of natural scenery on up to 9 acres. If the wells were not placed in production, the entire 4.17 acres for the well/production pad would be reclaimed. If the wells are placed in production, the well pad would be reduced in half and a flowline installed to connect with one of the existing pipelines located west of the proposed wells. Flowline placement would disturb 4.88 acres of hummocky uplands habitat, of which 0.032 acres are emergent wetlands. The natural visual scenery along the pipeline corridor would return when the surface is successfully reclaimed. Long-term occupancy by oil and gas developments on the well/production pad would be confined on 2.16 acres.

The potential for leaks and spills exists during all phases of oil and gas operations, resulting in impacts that could be serious on a very local level, with minor to major, short-term adverse impacts on visitor use and experience; however, with the mitigation measures included with this alternative, the intensity of impacts would be reduced.

Mitigation measures, including selecting a proposed operations area located away from visitor use developments and recreational use areas, providing security and a 3-strand barbed-wire fence during the drilling operations to prevent unauthorized entry into the operations area, fencing and gating the production operations, stationing a maintainer on the Gulf beach to smooth out any rutting that occurs to facilitate continued visitor access along the beach, using a diesel electric drilling rig and hospital mufflers and compressors to reduce noise levels, using primary and secondary containment to prevent leaks and spills from being released into the environment, planting native willow shrubs or trees around production facilities to provide and perpetuate migratory bird habitat and minimize visual impacts to visitors, caravanning large vehicles along the Gulf beach and enforcing speed limits, restricting large vehicle access on the Gulf beach at night, and painting the production facility a neutral color to blend with the surrounding environment, would result in avoiding or minimizing impacts on visitor use and experience.

BNP vehicle access on the Gulf beach; construction of the dune cut/access road and well/production pad, and flowline; and drilling and producing the wells would result in the short-term loss of natural scenery on up to 9 acres, and long-term occupancy by oil and gas developments on 2.16 acres, with localized, short to long-term, negligible to minor, adverse impacts, on visitor use and experience in the analysis area.

Cumulative Impacts

Under Alternative B, Proposed Action, cumulative impacts on visitor use and experience throughout the park would be similar to those described under No Action, with impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses, resulting

in short to long-term, minor to moderate, adverse impacts; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate adverse impacts on visitor use and experience, primarily along park shorelines.

Conclusion

Under Alternative B, Proposed Action, the Lemon/Lemon Seed Unit wells would be drilled and may be produced, resulting in the short-term loss of natural scenery on up to 9 acres, and long-term occupancy by oil and gas developments on 2.16 acres, with localized, short to long-term, negligible to minor, adverse impacts, on visitor use and experience in the analysis area.

Constructing the dune cut/access road, well/production pad, and flowline; and drilling and producing the wells, in addition to existing activities within the analysis area, would result in localized, short to long-term negligible to minor, adverse impacts on visitor use and experience. Cumulative impacts on visitor use and experience throughout the park would be similar to those described under Alternative A, No Action, with impacts from existing and future oil and gas operations in and adjacent to the park, park developments and operations, and visitor uses, resulting in short to long-term, minor to moderate, adverse impacts; but in the event of a spill from offshore oil and gas operations or tankers, impacts could be widespread, with negligible to moderate adverse impacts on visitor use and experience, primarily along park shorelines. No impairment to visitor use and experience would result from implementation of this alternative.

4.0. CONSULTATION AND COORDINATION

A Notice of Availability for the Plan of Operations, EA, draft Floodplains Statement of Findings, and draft Wetlands Statement of Findings will be published in the local *Corpus Christi Caller-Times* newspaper, announcing the availability of these documents for a 30-day review.

Following the 30-day public review period, NPS will consider written comments received. Additional mitigation measures resulting from the public involvement process may be applied by the NPS as conditions of approval of the Plan of Operations. Additional mitigation measures will be identified in the decision document. Copies of the decision document will be sent to those who comment on the Plan of Operations, EA, draft Floodplains Statement of Findings, and draft Wetlands Statement of Findings during the public review period, or request a copy.

4.1. Individuals and Agencies Consulted

Persons and agencies contacted for information, or that assisted in identifying important issues, development alternatives, or analyzing impacts are listed below:

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5.0. BIBLIOGRAPHY

BNP Petroleum Corporation and Belaire Environmental, Inc. 2001. Information Document for Proposed Drilling and Production Operations for Lemon/Lemon Seed Unit wells, Padre Island National Seashore. 500 N. Water Street Suite 1000, Corpus Christi, TX.

Blacklock, G.W. 1997. Birds of Padre and Mustang Island and Adjacent Waters, Annotated Checklist. Welder Wildlife Foundation, Sinton, Texas 140 pp.

Bockstanz, L. "Herps of Texas – Lizards, Phrynosoma cornutum Texas Horned Lizard." November 25, 1998. June 4, 2002. http://www.zo.utexas.edu/research/txherps/lizards/phrynosoma.cornutum.html

Brown, J.E. and G. H.H. Huey. 1991. Padre Island National Seashore. Southwest Parks and Monument Association, Tucson, AZ. 62 pp.

CCWild. "Texas Indigo Snake, Drymarchon corais erebennus." June 4, 2002. Http://ccwild.cbi.tamucc.edu/naturalhistory/texas_indigo_snake/tisacc.htm

Chaney, A.H., G.W. Blacklock, and S.G. Bartels [Ecoservices]. 1993. "Laguna Madre Bird Project From The Yarbrough Pass to Mansfield Channel During July 1992 Through April 1993". Contract 1443px7000092582, Padre Island National Seashore, Corpus Christi, Texas.

Chaney, A.H., G.W. Blacklock, and S.G. Bartels. 1993a. Bird Use of the Padre Island National Seashore Gulf Beach from Sept. 1992 – Aug. 1993. Contract 1443PX749092188, National Park Service, Corpus Christi, Texas. 85 pp.

Chaney, A.H., G.W. Blacklock, and S.G. Bartels. 1995a. Laguna Madre Bird Survey, Yarborough Pass to Northern Boundary, Padre Island National Seashore, August 1994 to August 1995. Contract 1443PX749094190, National Park Service, Corpus Christi, Texas. 93 pp.

Chaney, A.H., G.W. Blacklock, and S.G. Bartels. 1995b. Gulf Beach Bird Survey Northern Boundary to Yarborough Pass Padre Island National Seashore Oct. 1994 – Sept. 1995. National Park Service, Corpus Christi, Texas. 152 pp.

Channing, K. " White-tailed Hawk-*Buteo albicaudatus*." 2002. June 6, 2002. http://www.hawk-conservancy.org/priors/whitetailedhawk.shtml

Chapman, B.R. 1981. Effects of the IXTOC 1 oil spill on the South Texas coast. In: Proceedings of the 1981 Oil Spill Conference, pp. 461-466. American Petroleum Institute.

Chapman, B.R. 1988. Environmental survey of proposed wellsite, Dunn-McCampbell Well No. 2, Kenedy County, TX. Prepared for Tana Oil and Gas Corporation, Corpus Christi, TX.

Continental Shelf Associates, Inc. 1985. Plan of Operations, Union Oil Company of California, State Lease 83801, Well No. 1, Padre Island National Seashore. P.O. Box 2267, Galveston, TX.

Ditton, R.B. and J.H. Gramann. 1987. A Survey of Down-Island Visitors and Their Patterns at Padre Island National Seashore. National Park Service, Cooperative Park Studies Unit, Texas A&M University, Department of Recreation and Parks, Texas Agricultural Experiment Station, College Station, Texas, Technical Report No. 6. 175 p.

Drawe, D.L. 1992. An analysis of plant communities and plant species composition along four transects across Padre Island National Seashore. Submitted to John Miller, Chief, Environmental Management, Padre Island National Seashore, Corpus Christi, TX.

Dunn, Erica and David Agro. "Black Tern." 1995, May 17, 2002. http://www.birdsofna.org/excerpts/blktern.htm

Engelhard, T.K. and K. Withers. 1997. The effects of mechanical beach raking in the upper tidal zone on Padre Island National Seashore, TX. Contract 1443PX749070058, Padre Island National Seashore, Corpus Christi, Texas.

Ernest, R.G., R.E. Martin, and K.A. Duhring. 1998. Beach Driving and Sea Turtles: What Kind of Risk? In: Proceedings of the Seventeenth Annual Symposium on Sea Turtle Biology and Conservation, March 4-8, 1997, Orlando, Florida, p. 50-53. S.P. Epperly and J. Braun (compilers). NOAA Tech. Memo. NMFS-SEFSC-415.

Fletemeyer, J.R. 1996. Guest editorial: The shot heard around the world—Volusia Sea Turtle Suit. Marine Sea Turtle Newsletter 72: 16-17.

Foch, James D. 1998. Ambient and Aircraft Sound Levels at Padre Island National Seashore during January – March 1998.

Gramann, J.H. and E.J. Ruddell. 1989. Characteristics, Management Preferences and Conflict Perceptions of Bird Island Basin Visitors, Padre Island National Seashore. National Park Service, Cooperative Park Studies Unit, Texas A&M University, College Station, Texas, Technical Report No. 14. 159 p.

Hildebrand, H.H. 1963. Hallazgo del area de anidacion de la tortuga marina "lora", *Lepidochelys kempi* (Garman), en la costa occidental del Golfo de Mexico. Ciencia, Mexico 22:105-12.

Hildebrand, H.H. 1981. A historical review of the status of sea turtle populations in the western Gulf of Mexico. In: Biology and Conservation of Sea Turtles, November 26-30, 1979. Washington, D.C., p. 447-453. K. Bjorndal (editor). Smithsonian Institution Press, Washington, D.C.

Hildebrand, H.H. 1983. Random notes on sea turtles in the western Gulf of Mexico. In: Western Gulf of Mexico Sea Turtle Workshop Proceedings, January 13-14, 1983. College Station, Texas, p. 34-40. D. Owens et al. (editors). Texas Sea Grant College Program, TAMU-SG-84-105.

Hosier, P.E., M. Kochhar, and V. Thayer. 1981. Off-road vehicle and pedestrian track effects on the s92ea-approach of hatchling loggerhead turtles. Environmental Conservation 8(2): 158-161.

Maechtle, T.L. 1993. Padre Island Peregrine Falcon Survey Spring and Autumn 1993. Padre Island National Seashore, Corpus Christi, Texas.

Mann, T.M. 1997. Impact of developed coastline on nesting and hatchling sea turtles in southeastern Florida. Unpublished M.S. Thesis. Florida Atlantic University, Boca Raton.

McCracken, K. and C.T. Clark. 1990. A Checklist of the Birds of Padre Island National Seashore. Southwest Parks and Monuments Association, Tucson, AZ. 4 pp.

Moore, William J. and James E. Warren. 2001. A Cultural Survey of the Proposed Lemon/Lemon Seed Unit Drilling Pad Location, Padre Island National Seashore, Kenedy County, Texas. 13p.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1991a. Recovery Plan for U.S. Population of Atlantic Green Turtle. National Marine Fisheries Service, Washington, D.C. 52 pp.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1991b. Recovery Plan for U.S. Population of Loggerhead Turtle. National Marine Fisheries Service, Washington, D.C. 64 pp.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1992. Recovery Plan for Leatherback Turtles in the U.S. Caribbean, Atlantic, and Gulf of Mexico. National Marine Fisheries Service, Washington, D.C. 65 pp.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1993. Recovery Plan for Hawksbill Turtles in the U.S. Caribbean Sea, Atlantic Ocean, and Gulf of Mexico. National Marine Fisheries Service, St. Petersburg, Florida. 52 pp.

National Park Service. 2001. Final Bird Island Basin Recreational Use Plan. Padre Island National Seashore.

Nebraska Game and Parks Commission. “Interior Least Tern an Endangered Species.” May 17, 2002. http://www.ngpc.state.ne.us/wildlife/ltern.html

Null, Stephanie. “Black Tern (*Chlidonias niger*).” July 29, 1997. May 17, 2002. http://animaldiversity.ummz.umich.edu/accounts/childonias/c_niger$narrative.html

Padre Island National Seashore
2000, Final Oil and Gas Management Plan Environmental Impact Statement (FEIS).
1999, Checklist of Birds for Padre Island National Seashore.
1983, General Management Plan/Developmental Concept Plan (GMP/DCP)

Peterson Multimedia Guides, North American Birds. “Brown Pelican.” June 6, 2002. http://www.petersononline.com/birds/month/brpe/index.html

Rappole, J.H., and G.W. Blacklock. 1985. Birds of the Coastal Bend, Abundance and Distribution. Texas A&M University Press, College Station 126 pp.

Rappole, J.H., and G.W. Blacklock. 1994. A Field Guide, Birds of Texas. Texas A&M University Press, College Station, Texas 280 pp.

Scott, S.L. 1983. Field Guide to the Birds of North America, Second Edition. National Geographic Society, Washington, D.C. 464 pp.

Shaver, D.J. 1989. Green sea turtle geographic distribution. Herpetological Review 20(1):14.

Shaver, D.J. 1997. Kemp's ridley turtles from an international project return to Texas to nest. In: Proceedings of the Sixteenth Annual Gulf of Mexico Information Transfer Meeting, December 10-12, 1996, New Orleans, Louisiana, p. 38-40. University of New Orleans, Office of Conference Services (compiler). U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region MMS 97-0038.

Shaver, D.J. 1998a. Kemp's ridley sea turtle nesting on the Texas coast, 1979-1996. In: Proceedings of the Seventeenth Annual Symposium on Sea Turtle Biology and Conservation, March 4-8, 1997, Orlando, Florida, p. 91-94. S.P. Epperly and J. Braun (compilers). NOAA Tech. Memo. NMFS-SEFSC-415.

Shaver, D.J. 1998b. Sea turtle strandings along the Texas coast, 1980-94. In: Characteristics of Texas marine strandings, p. 57-72. R. Zimmerman (editor). NOAA Technical Reports NMFS 143.

Shaver, D.J. 1999a. Kemp's ridley sea turtle project at Padre Island National Seashore, Texas. In: Proceedings of the Seventeenth Annual Gulf of Mexico Information Transfer Meeting, December 16-18, 1997, New Orleans, Louisiana, p. 342-347. M. McKay and J. Nides (editors). U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, MMS 99-042.

Shaver, D.J. 1999b. Padre Island National Seashore Kemp's ridley sea turtle project and sea turtle strandings 1998 report. U.S. Department of the Interior, U.S. Geological Survey. 58 pp.

Shaver, D.J. 2000. Distribution, residency, and seasonal movements of the green sea turtle, Chelonia mydas (Linnaeus, 1758), in Texas. Unpublished Ph.D. Dissertation, Texas A&M University. 273 pp.

Shaver, D.J., and C.W. Caillouet, Jr. 1998. More Kemp's ridley turtles return to south Texas to nest. Marine Turtle Newsletter 82:1-5

Sibley, D.A. 2000. National Audubon Society, The Sibley Guide to Birds. Alfred A. Knopf, New York, New York 544 pp.

Texas Colonial Waterbird Database. U.S. Fish and Wildlife Service. 2001. June 6, 2002. http://texascoastalprogram.fws.gov/Texas_Colonial_Waterbird_Census_2002.xls

TEXAS PARKS AND WILDLIFE DEPARTMENT. "Brown Pelican." Sept. 28, 1999. May 17, 2002. http://tpwd.state.tx.us/nature/endang/birds/bpelican.htm

TEXAS PARKS AND WILDLIFE DEPARTMENT." Piping Plover." Sept. 30, 1999. May 17, 2002. http://tpwd.state.tx.us/nature/ending/birds/piplover.htm

TEXAS PARKS AND WILDLIFE DEPARTMENT. "Threatened and Endangered Species." Nov. 30, 2001. May 17, 2002. http://tpwd.state.tx.us/nature/endang/

TEXAS PARKS AND WILDLIFE DEPARTMENT. " Peregrine Falcon." April 3, 2002. May 17, 2002. http://tpwd.state.tx.us/nature/ending/birds/peregrine.htm

Todd, R. "Phrynosoma cornutum, Texas Horned Lizard, Texas Horned Lizard." May 2000. June 4, 2002.
http://animaldiversity.ummz.umich.edu/accounts/phrynosoma/p._cornutum$narrative.html

University of Texas. "Herps of Texas – Snakes, Drymarchon corais erebennus Texas Indigo Snake." January 1, 1999. June 4, 2002.
http://www.zo.utexas.edu/research/txherps/snakes/drymarchon.corais.html

U.S. Department of Agriculture. 1965. Soil survey, Nueces County, Texas. Soil Conservation Service. U.S. Government Printing Office, Washington, D.C.

U.S. Department of the Interior. 1983. Padre Island National Seashore – General Management Plan; Development Concept Plan. National Park Service. Denver Service Center.

U.S. Department of the Interior. 2000. Final Oil and Gas Management Plan/Environmental Impact Statement for Padre Island National Seashore. National Park Service, Corpus Christi, TX.

U.S. Fish and Wildlife Service and National Marine Fisheries Service 1992. Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*). National Marine Fisheries Service, St. Petersburg, Florida. 40 pp.

U.S. Fish and Wildlife Service "Piping Plover Atlantic Coast Population." March 15, 2000. June 7, 2002. http://pipingplover.gws.gov/overview.html

6.0. APPENDIX ONE

Federally Listed Endangered and Threatened Species

Gulf Coast Jaguarundi	(E)	*Herpailurus yagouaroundi cacomitli*
Ocelot	(E)	*Leopardus pardalis*
West Indian manatee (=Florida)	(E)	*Trichechus manatus*
Coues' rice rat	(SOC)	*Oryzomys couesi aquaticus*
Green sea turtle	(T)	*Chelonia mydas*
Loggerhead sea turtle	(T)	*Caretta caretta*
Hawksbill sea turtle	(E w/CH‡)	*Eretmochelys imbricata*
Kemp's Ridley sea turtle	(E)	*Lepidochelys kempii*
Leatherback sea turtle	(E w/CH‡)	*Dermochelys coriacea*
Black-spotted newt	(SOC)	*Notophthalmus meridionalis*
Rio Grande lesser siren	(SOC)	*Siren intermedia texana*
Texas horned lizard	(SOC)	*Phrynosoma cornutum*
American alligator	(TSA)	*Alligator mississipiensis*
Least Tern	(E ~)	*Sterna antillarum*
Whooping Crane	(E w/CH)	*Grus americana*
Bald Eagle	(T)	*Haliaeetus leucocephalus*
Piping Plover	(T w/CH)	*Charadrius melodus*
Loggerhead Shrike	(SOC)	*Lanius ludovicianus*
White-faced Ibis	(SOC)	*Plegadis chihi*
Brown Pelican	(E)	*Pelecanus occidentalis*
Northern Aplomado Falcon	(E)	*Falco femoralis septentrionalis*
Audubon's Oriole	(SOC)	*Icterus graduacauda audubonii*
Cerulean Warbler	(SOC)	*Dendroica cerulea*
Ferruginous Hawk	(SOC)	*Buteo regalis*
Black Tern	(SOC)	*Chlidonias niger*
Reddish Egret	(SOC)	*Egretta rufescens*
Sennett's Hooded Oriole	(SOC)	*Icterus cucullatus sennetti*
Texas Botteri's Sparrow	(SOC)	*Aimophila botterii texana*
Texas Olive Sparrow	(SOC)	*Arremonops rufivirgatus rufivirgatus*
Tropical Parula	(SOC)	*Parula pitiayumi nigrilora*
Mountain Plover	(P/T)	*Charadrius montanus*
Brownsville Common Yellowthroat	(SOC)	*Geothlypis trichas insperata*
Bailey's ballmoss	(SOC)	*Tillandsia baileyi*
Roughseed sea-purslane	(SOC)	*Sesuvium trianthemoides*
South Texas ambrosia	(E)	*Ambrosia cheiranthifolia*
Black lace cactus	(E)	*Echinocereus reichenbachii* var. *albertii*
Slender rush-pea	(E)	*Hoffmannseggia tenella*
Welder machaeranthera	(SOC)	*Psilactis heterocarpa*
Texas Ayenia	(E)	*Ayenia limitaris*
Lilia de los llanos	(SOC)	*Echeandia chandleri*
Los Olmos tiger beetle	(SOC)	*Cicindela nevadica olmosa*
Maculated manfreda skipper	(SOC)	*Stalligsia maculosus*

State Listed Threatened and Endangered Species

Texas horned lizard	(T)	*Phrynosoma cornutum*
Indigo snake	(T)	*Drymobius corias*
Loggerhead sea turtle	(T)	*Caretta caretta*
Green sea turtle	(T)	*Chelonia mydas*
Atlantic hawksbill sea turtle	(E)	*Eretmochelys imbricata*
Kemp's ridley sea turtle	(E)	*Lepidochelys kempi*
Leatherback sea turtle	(E)	*Dermochelys coriacea*
Bald Eagle	(T)	*Haliaeetus leucocephalus*
Northern Aplomado Falcon	(E)	*Falco femoralis septentrionalis*
Southwestern Willow Flycatcher	(E)	*Empidonax trailii extimus*
Eastern Brown Pelican	(E)	*Pelecanus occidentalis*
Piping Plover	(T)	*Charadrius melodus*
Reddish Egret	(T)	*Egretta rufescens*
White-Faced Ibis	(T)	*Plegadis chihi*
Wood Stork	(T)	*Mycteria Americana*
Swallow-Tailed Kite	(T)	*Elannoides forticatus*
White-Tailed Hawk	(T)	*Buteo albonotatus*
Peregrine Falcon	(E)	*Falco femoralis septentrionalis*
Least Tern	(E)	*Sterna antillarum athalassos*
Black-Capped Vireo	(E)	*Vireo atricapillus*
Tropical Parula	(E)	*Parula ptiayumi nigrilora*

Fishes
No listed species documented at this times within Padre Island National Seashore.

Marine Mammals
All marine mammals, excluding the West Indian Manatee, only occur in the Padre Island National Seashore when stranded due to illness or death.

Index
Statewide or areawide migrants are not included by county, except where they breed or occur in concentrations. The whooping crane is an exception; an attempt is made to include all confirmed sightings on this list.

E	=	Species in danger of extinction throughout all or a significant portion of its range.
T	=	Species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
C	=	Species for which the Service has on file enough substantial information to warrant listing as threatened or endangered.
CH	=	Critical Habitat (in Texas unless annotated ‡)
P/E	=	Species proposed to be listed as endangered.
P/T	=	Species proposed to be listed as threatened.
TSA	=	Threatened due to similarity of appearance.
SOC	=	Species for which there is some information showing evidence of vulnerability, but not enough data to support listing at this time.
‡	=	CH designated (or proposed) outside Texas
~	=	protection restricted to populations found in the "interior" of the United States. In Texas, the least tern receives full protection, except within 50 miles (80 km) of the Gulf Coast.

Filename: EA2-A Final.doc
Directory: N:\OIL&GAS\BNP-Seiskin\Lemon-Lemon Seed\Rev. EA2 packet
Template: C:\Documents and Settings\pslattery\Application Data\Microsoft\Templates\Normal.dot
Title: L3025(IMSF-RMO)
Subject:
Author: Preferred Customer
Keywords:
Comments:
Creation Date: 8/26/2002 9:53 AM
Change Number: 9
Last Saved On: 10/3/2002 2:10 PM
Last Saved By: Arlene Wimer
Total Editing Time: 51 Minutes
Last Printed On: 9/16/2004 3:29 PM
As of Last Complete Printing
Number of Pages: 114
Number of Words: 59,725 (approx.)
Number of Characters: 340,434 (approx.)